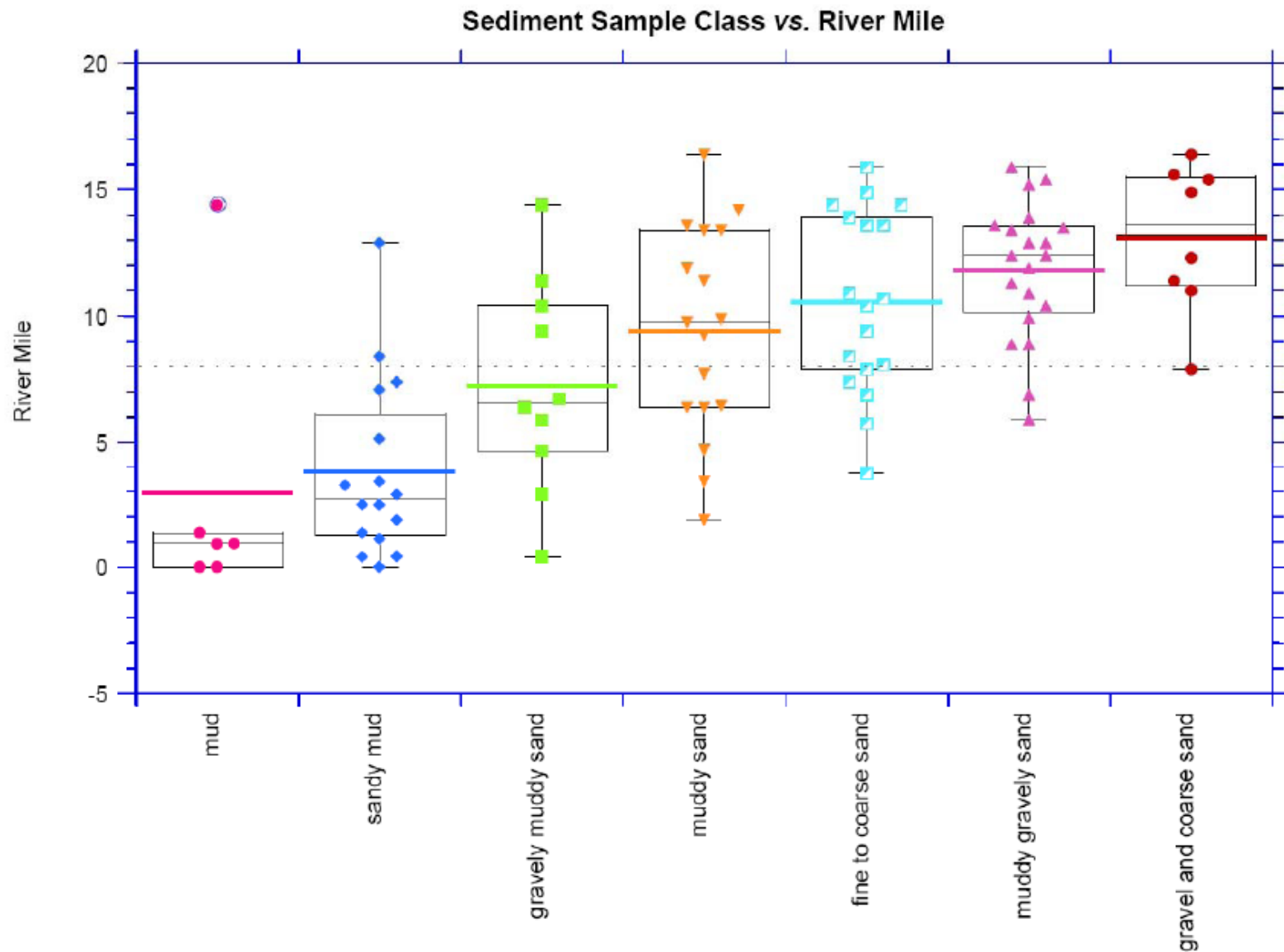


Chapter 11 Figures

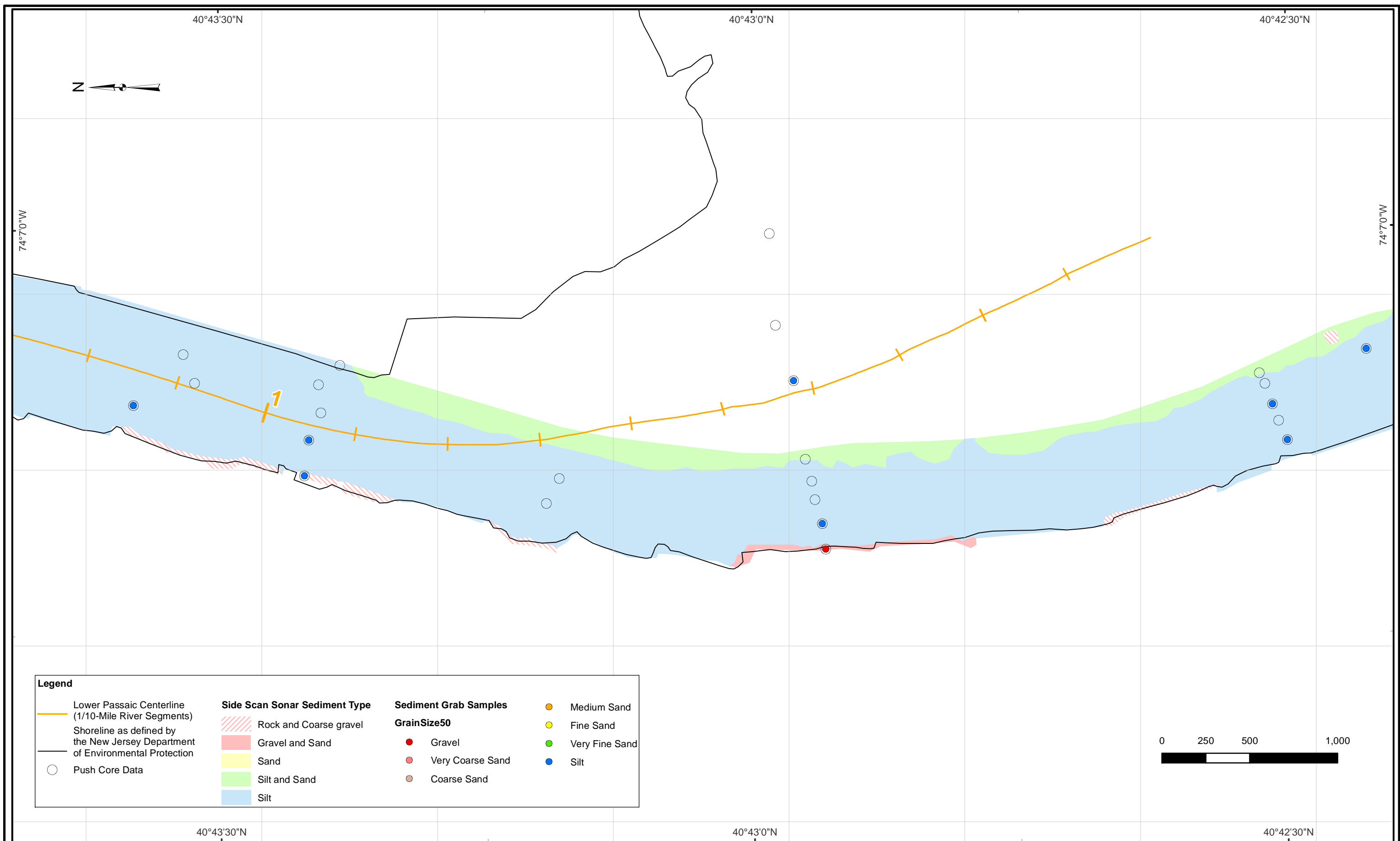


Sediment Sample Class by River Mile

Lower Passaic River Restoration Project

Figure 11-1

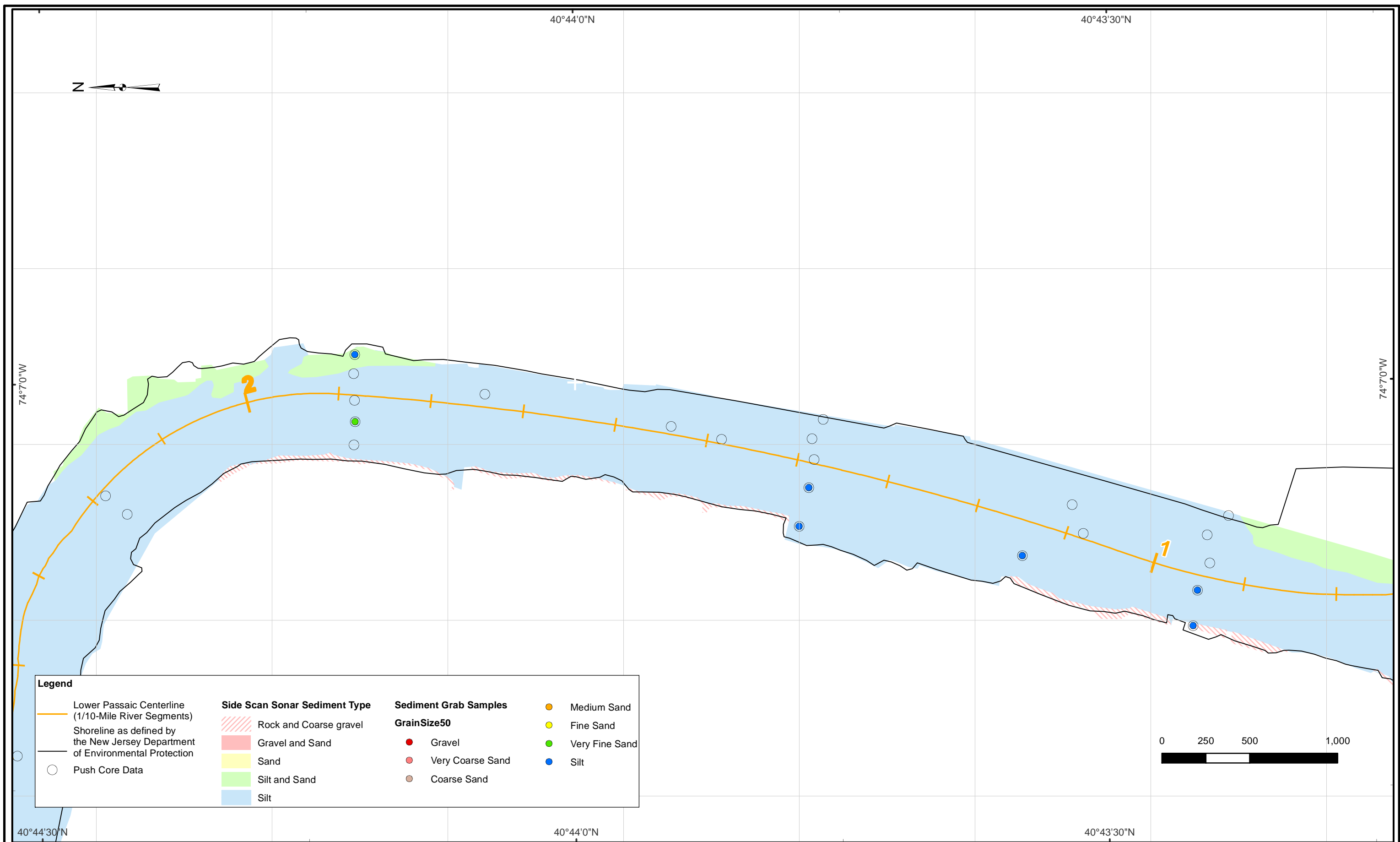
September 2008



Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2a

September 2008

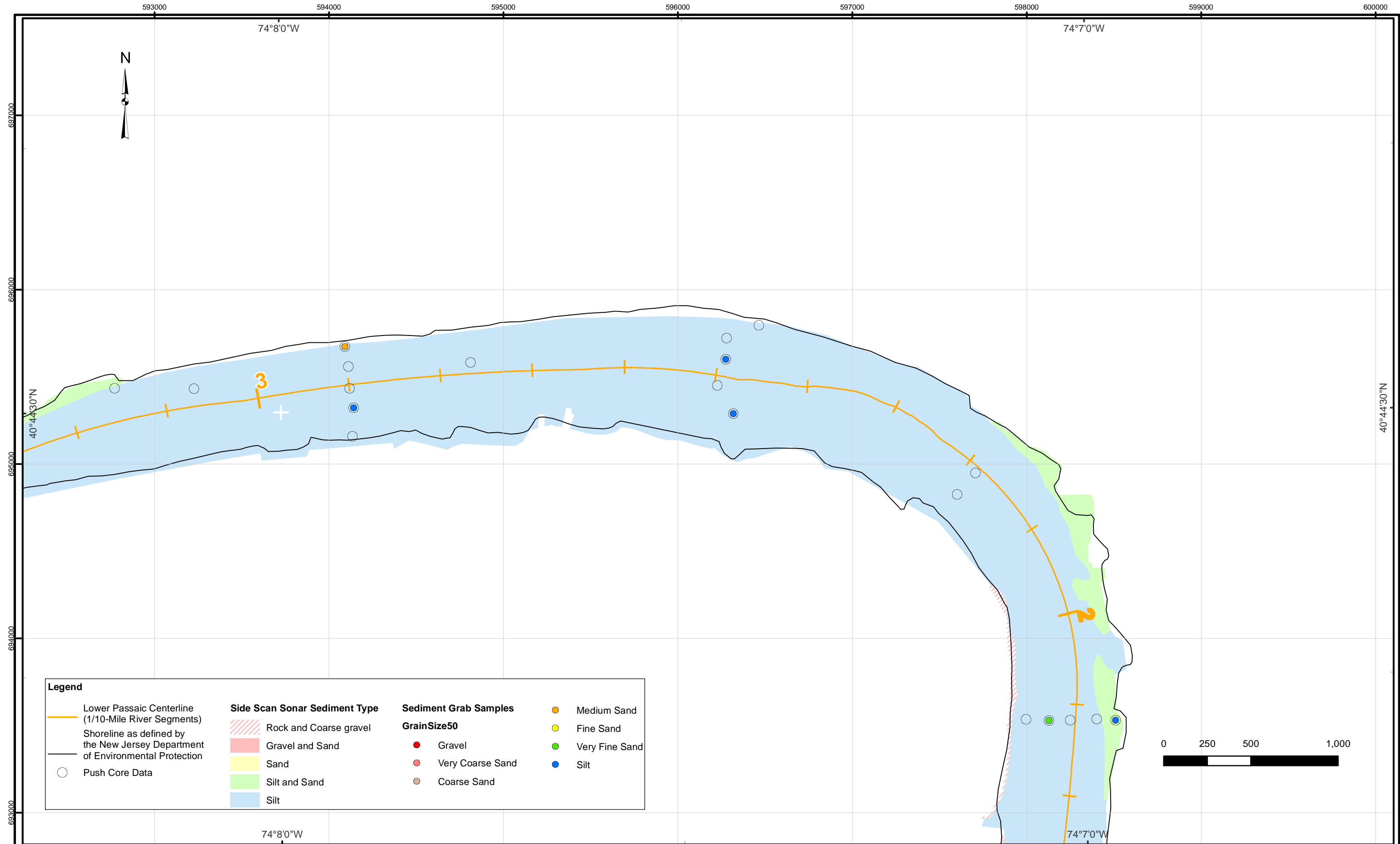


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2b

September 2008



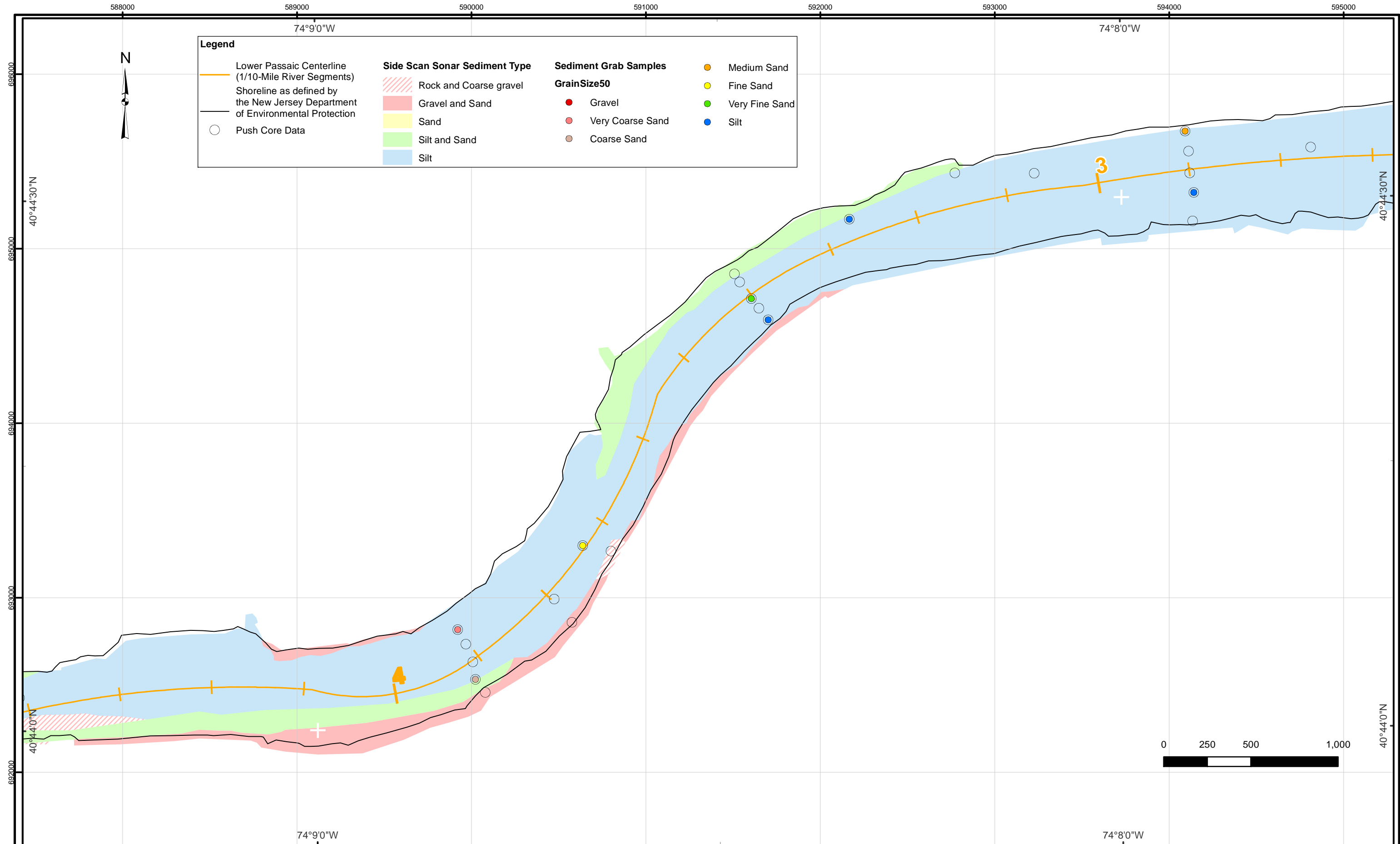


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2c

September 2008

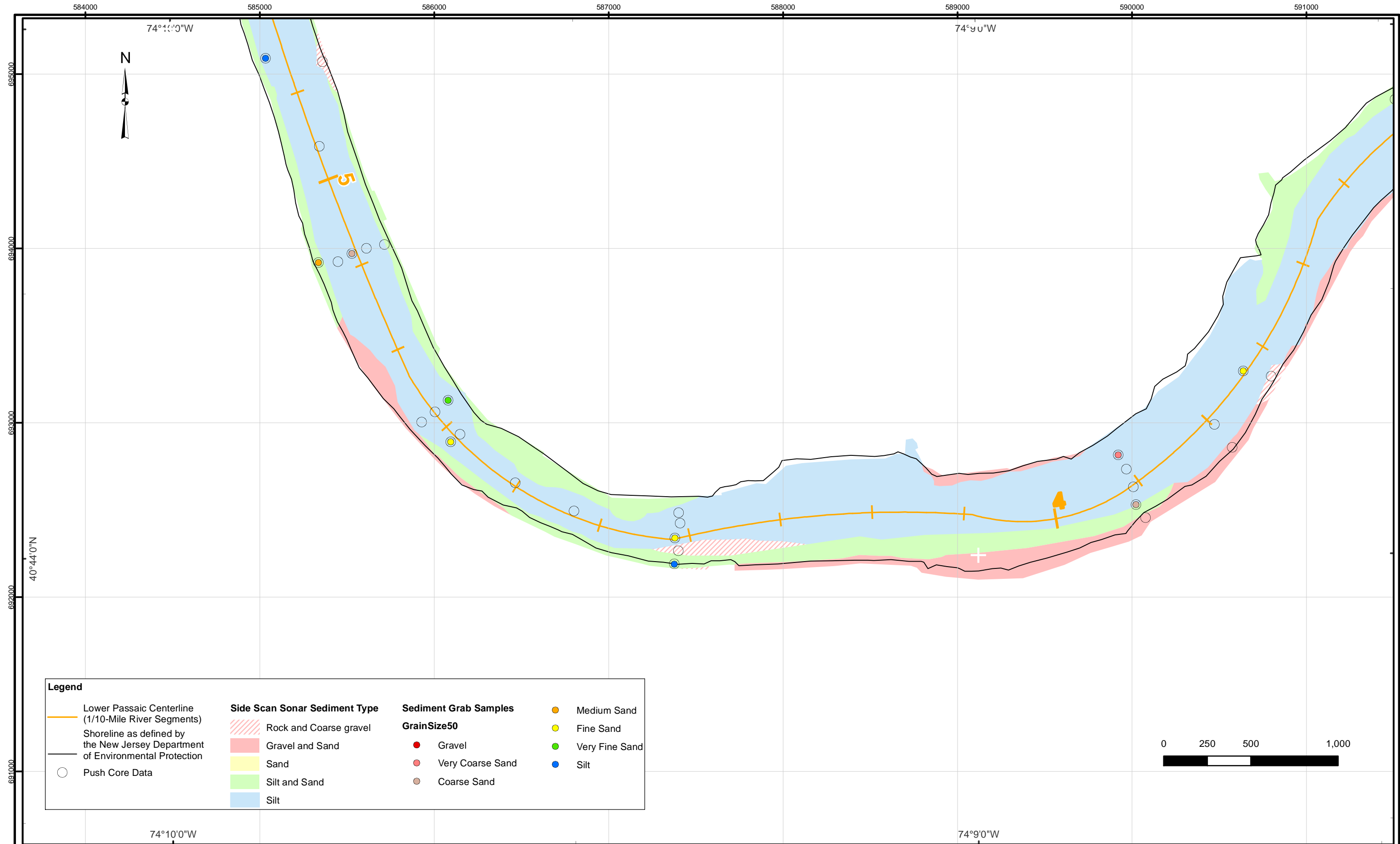




Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2d

September 2008

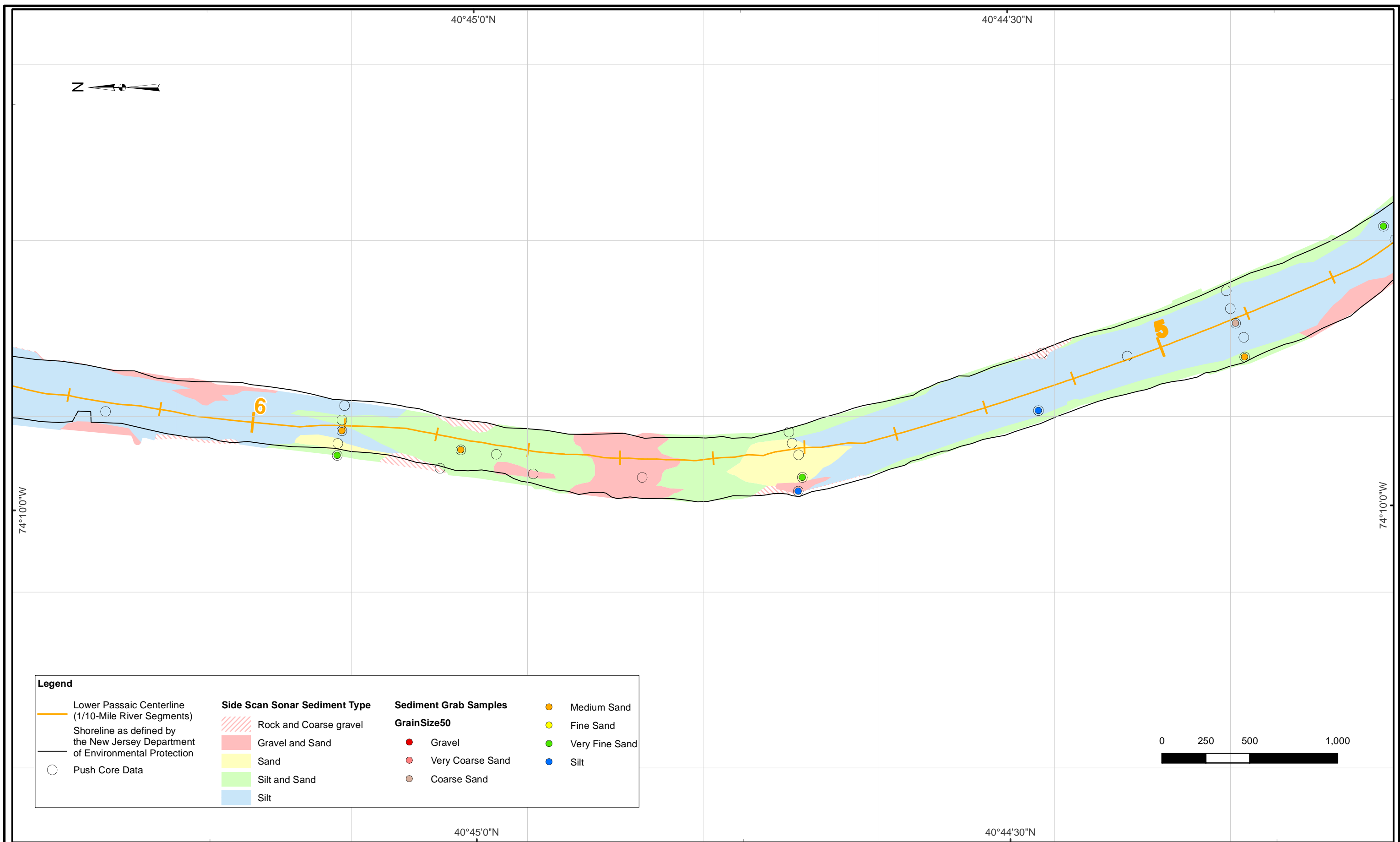


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2e

September 2008



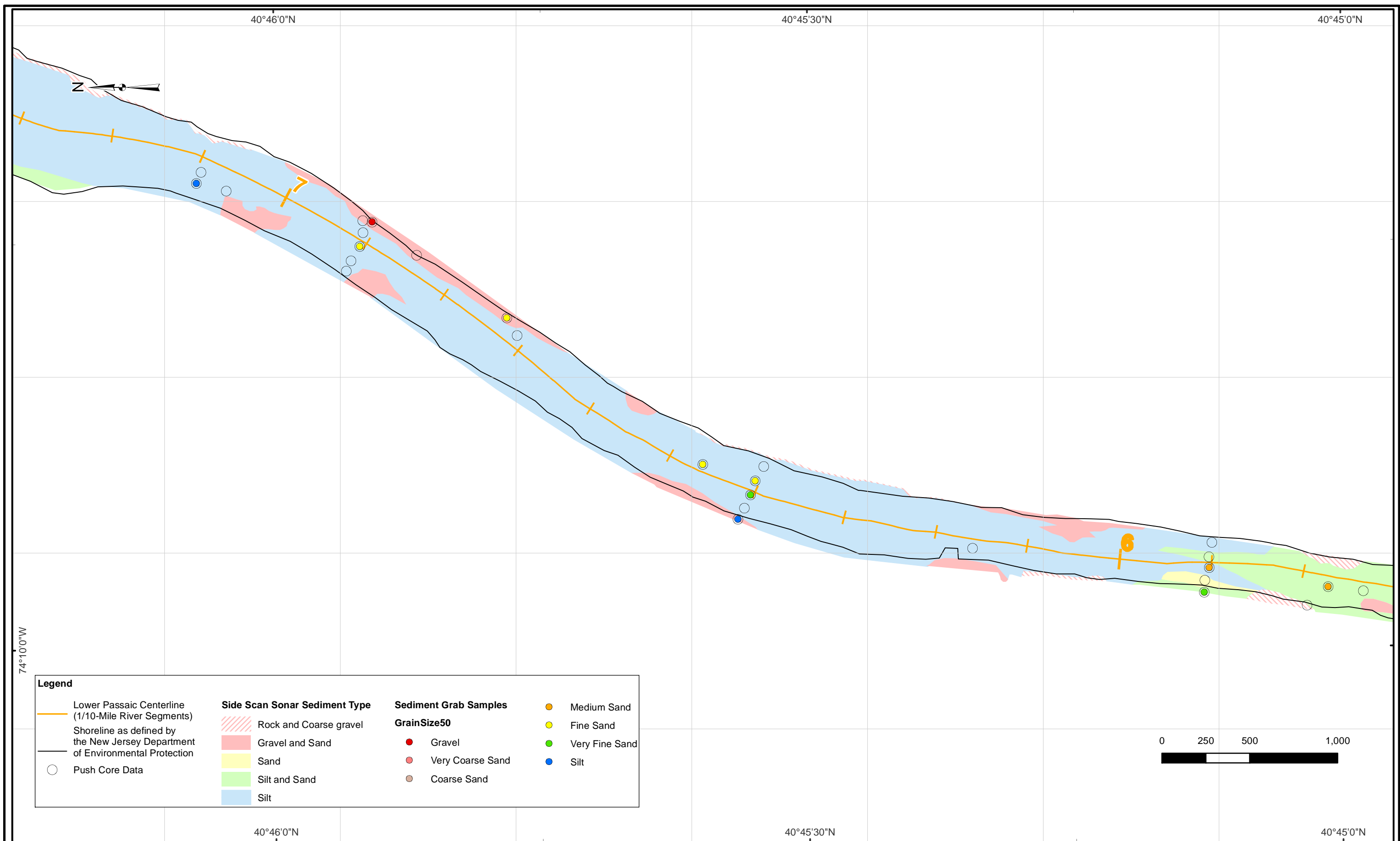


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2f

September 2008



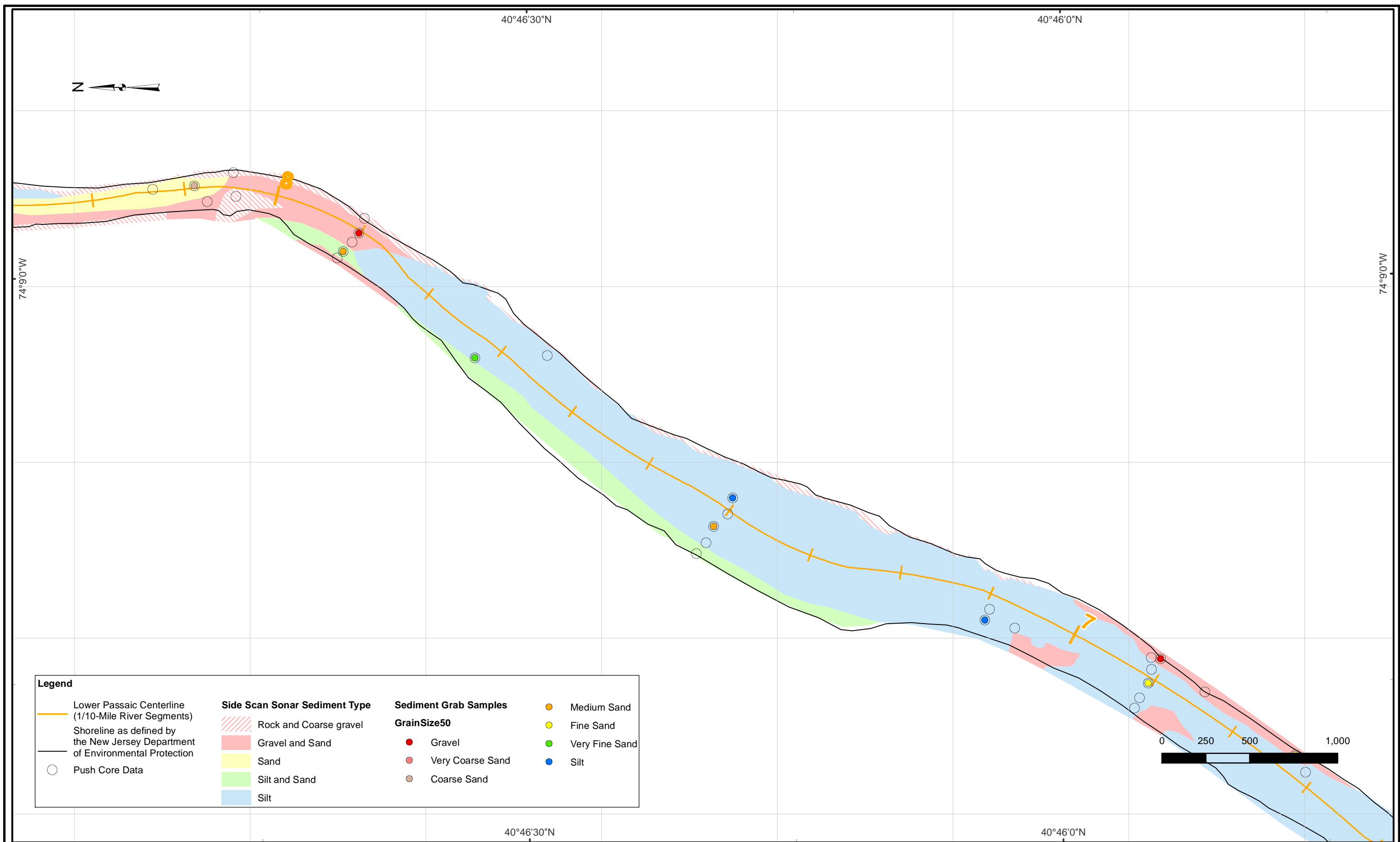


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2g

September 2008



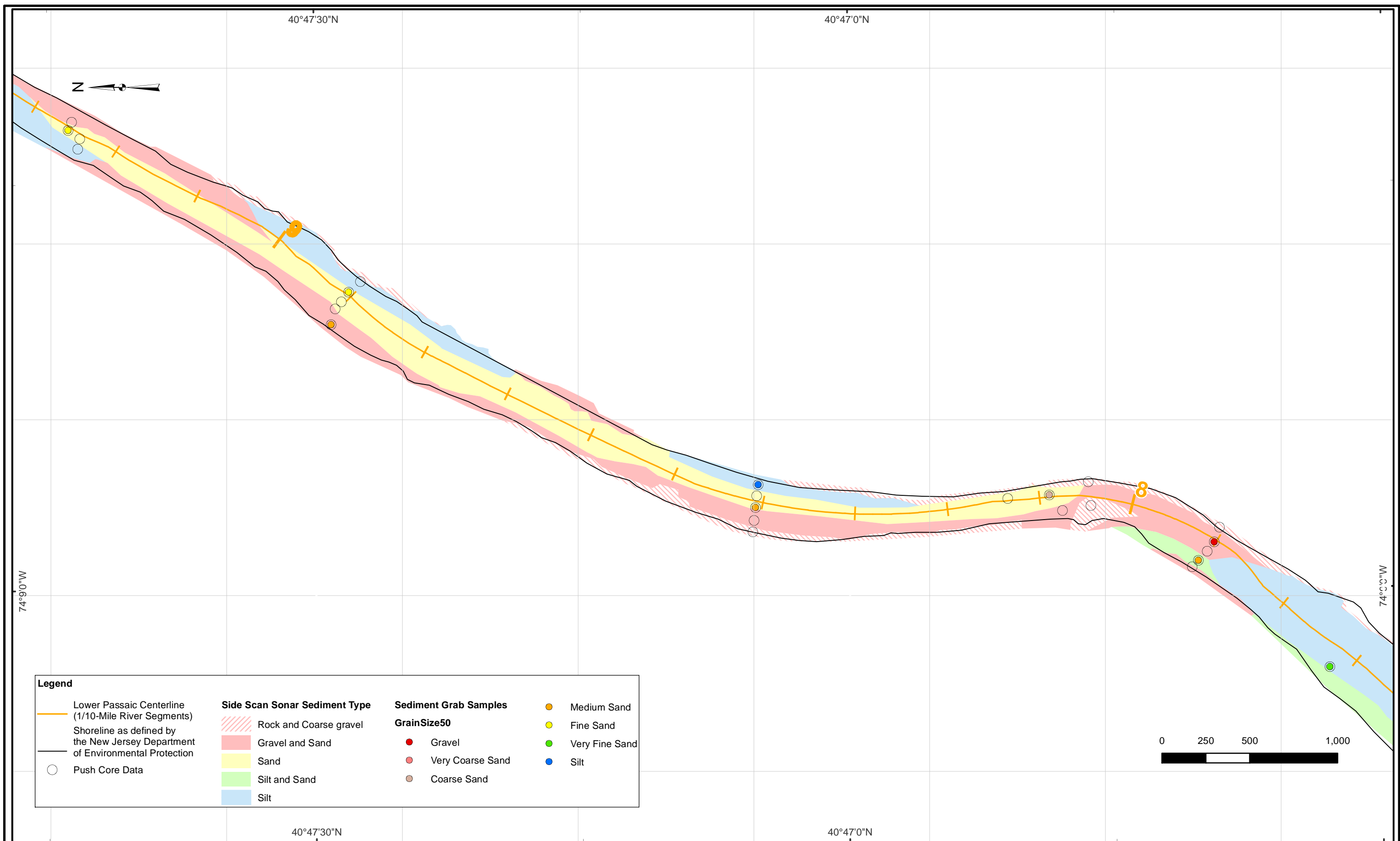


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2h

September 2008



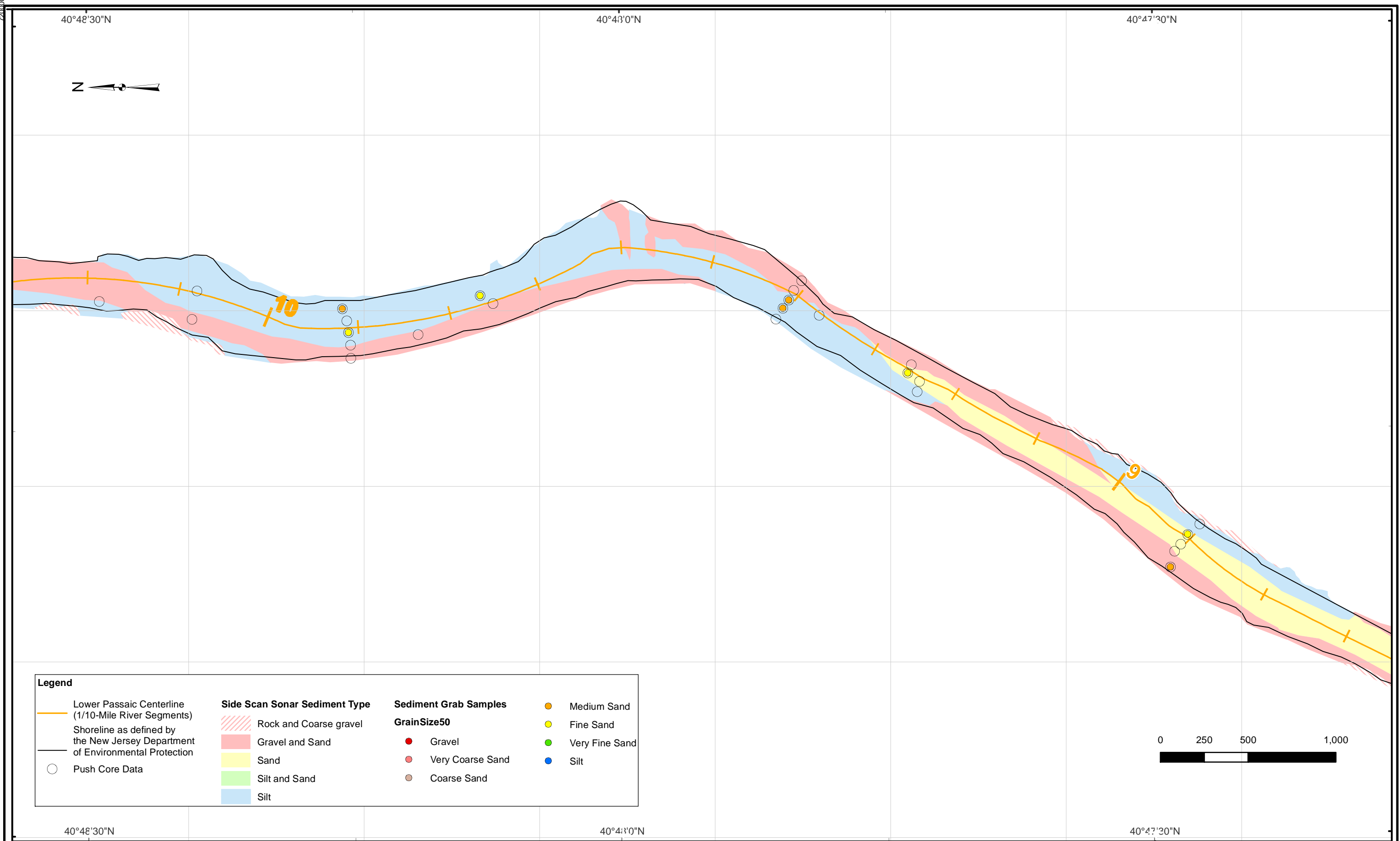


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2i

September 2008



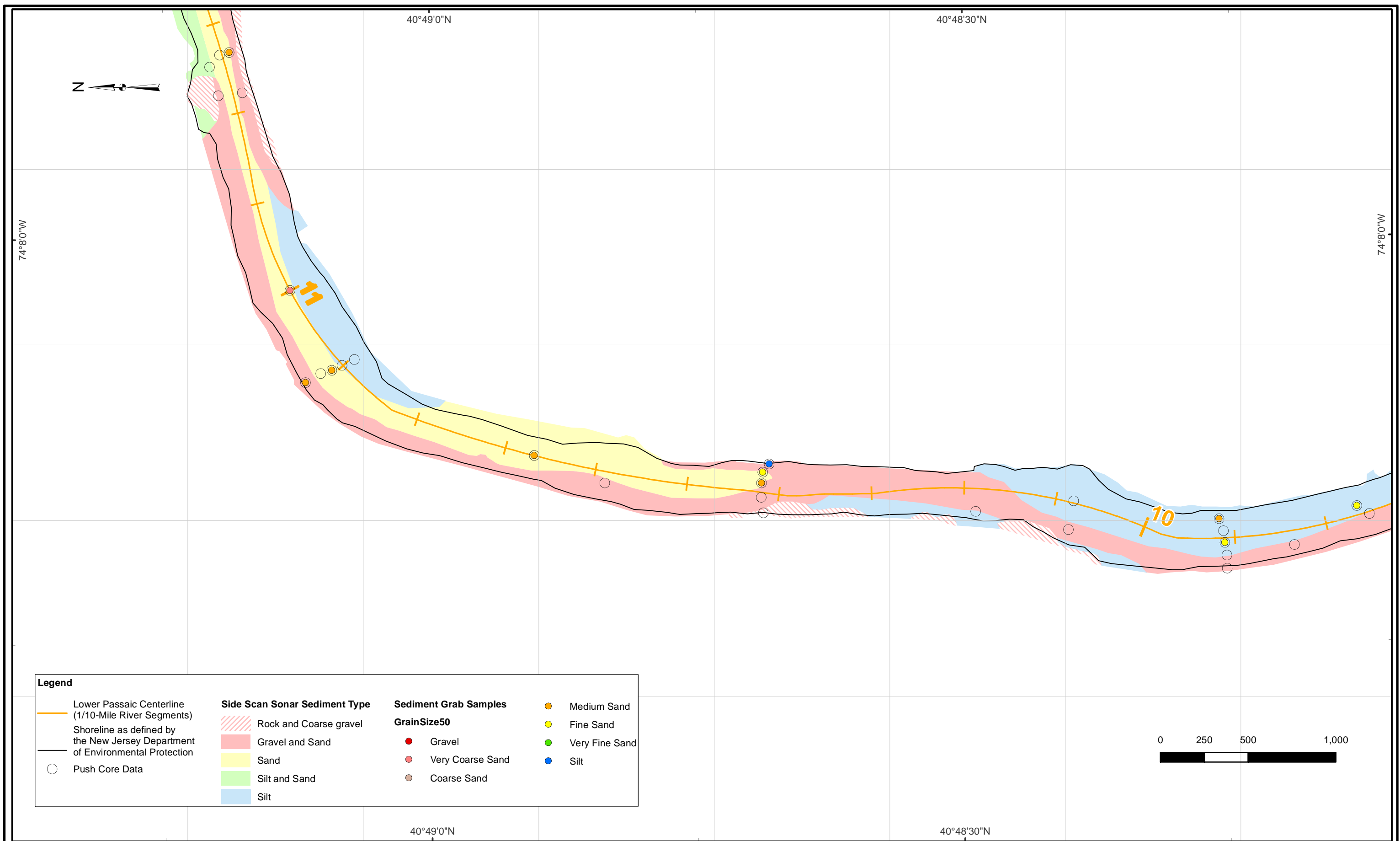


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2j

September 2008



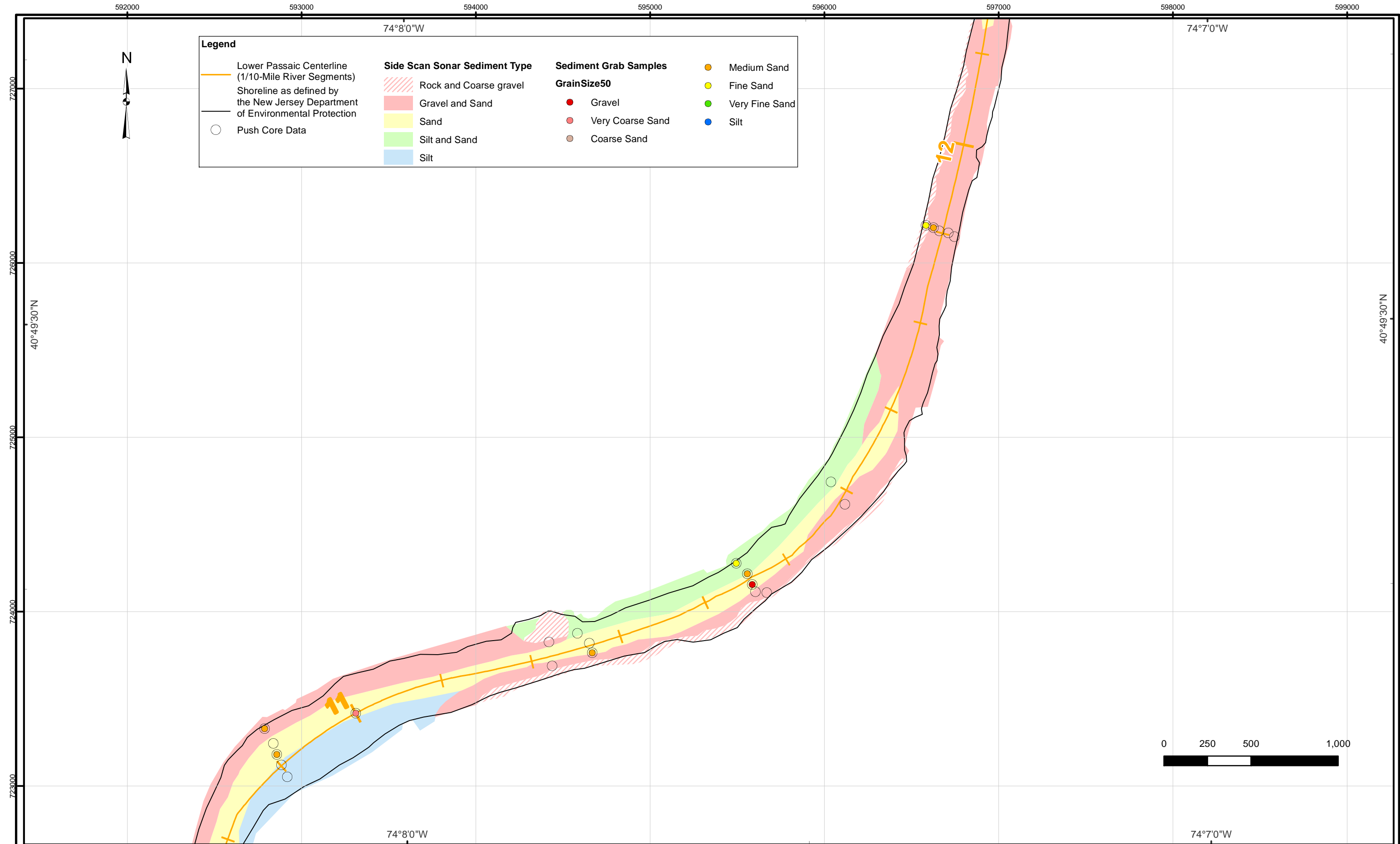


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2k

September 2008



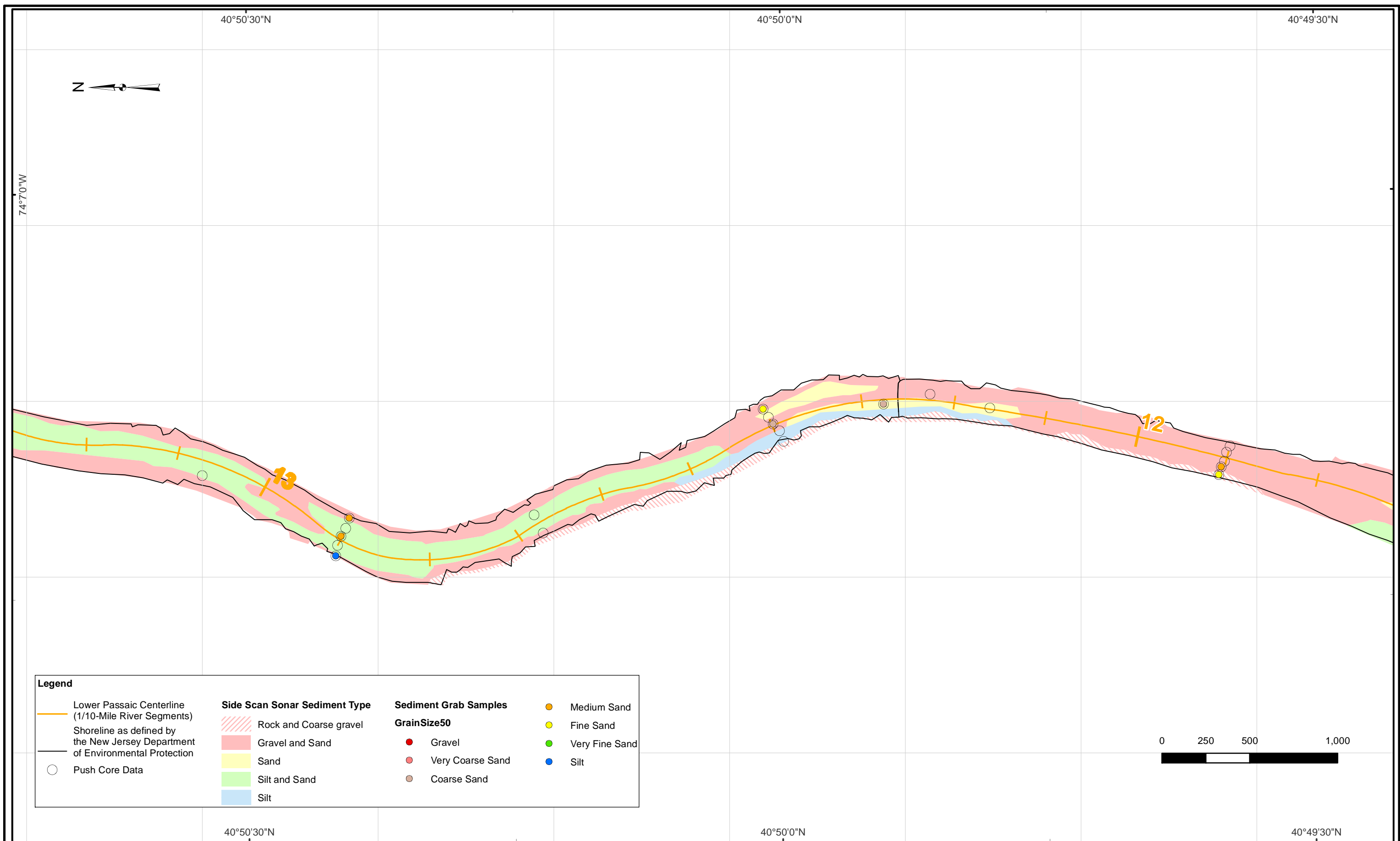


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project



Figure 11-21

September 2008

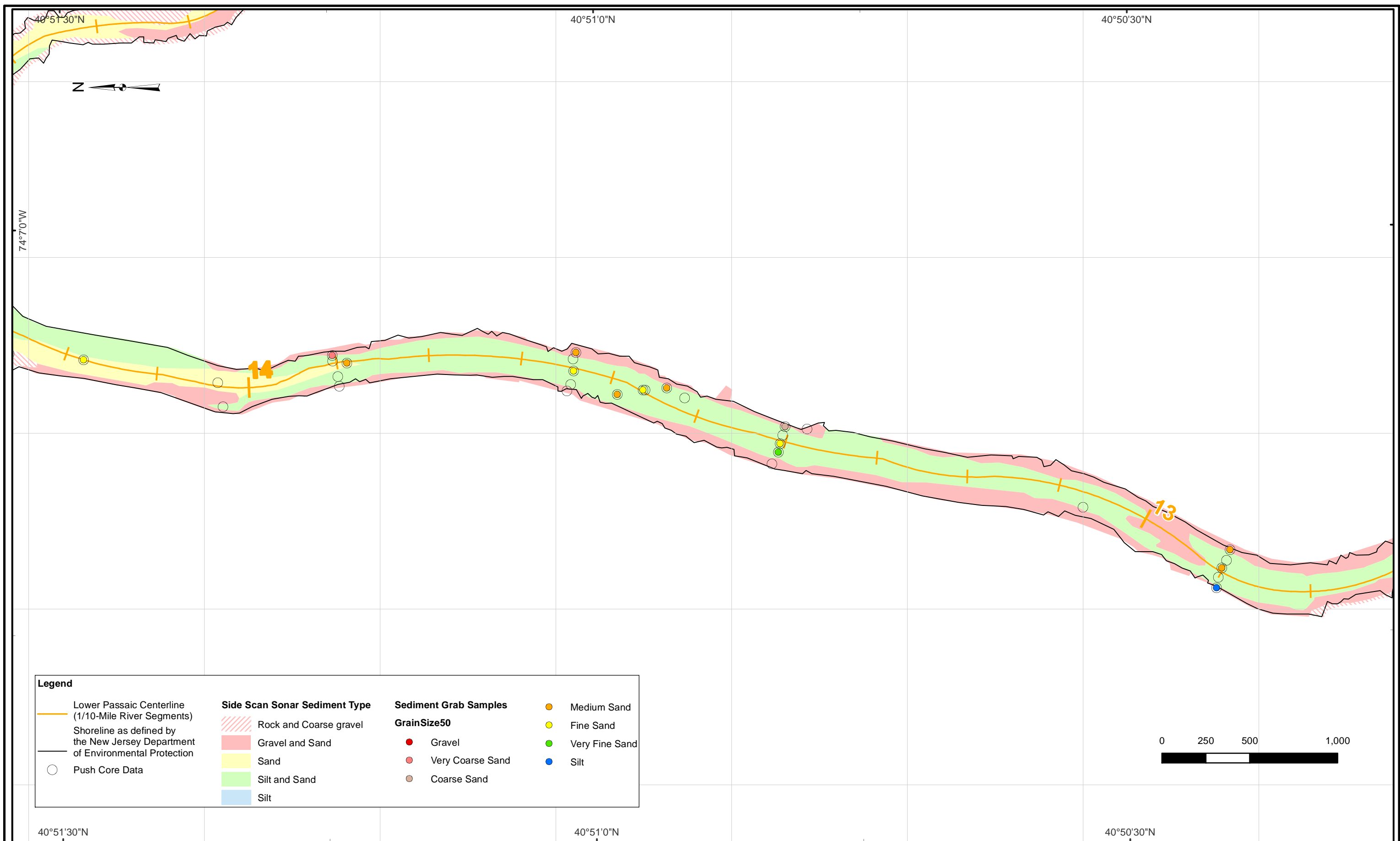


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2m

September 2008



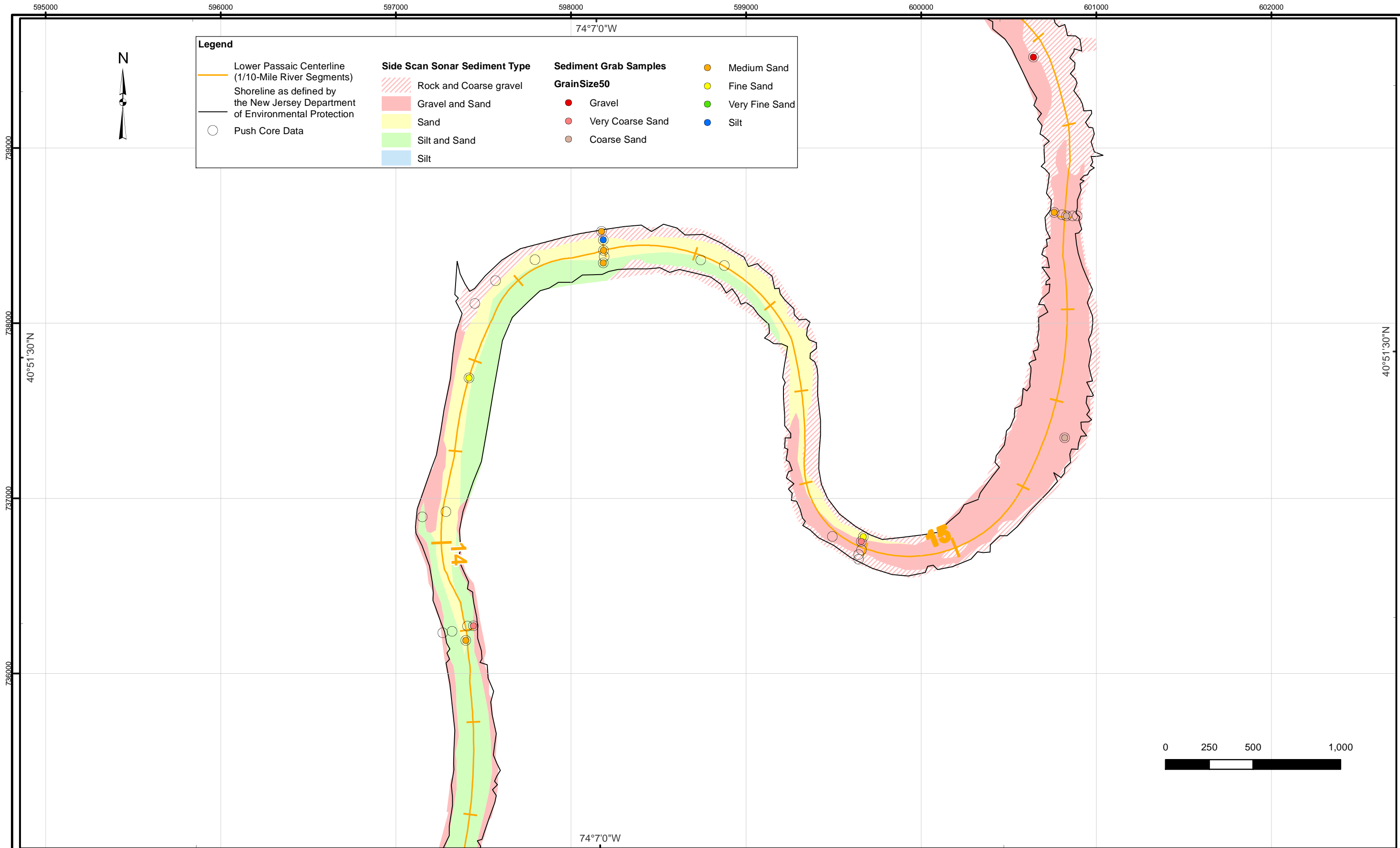


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2n

September 2008



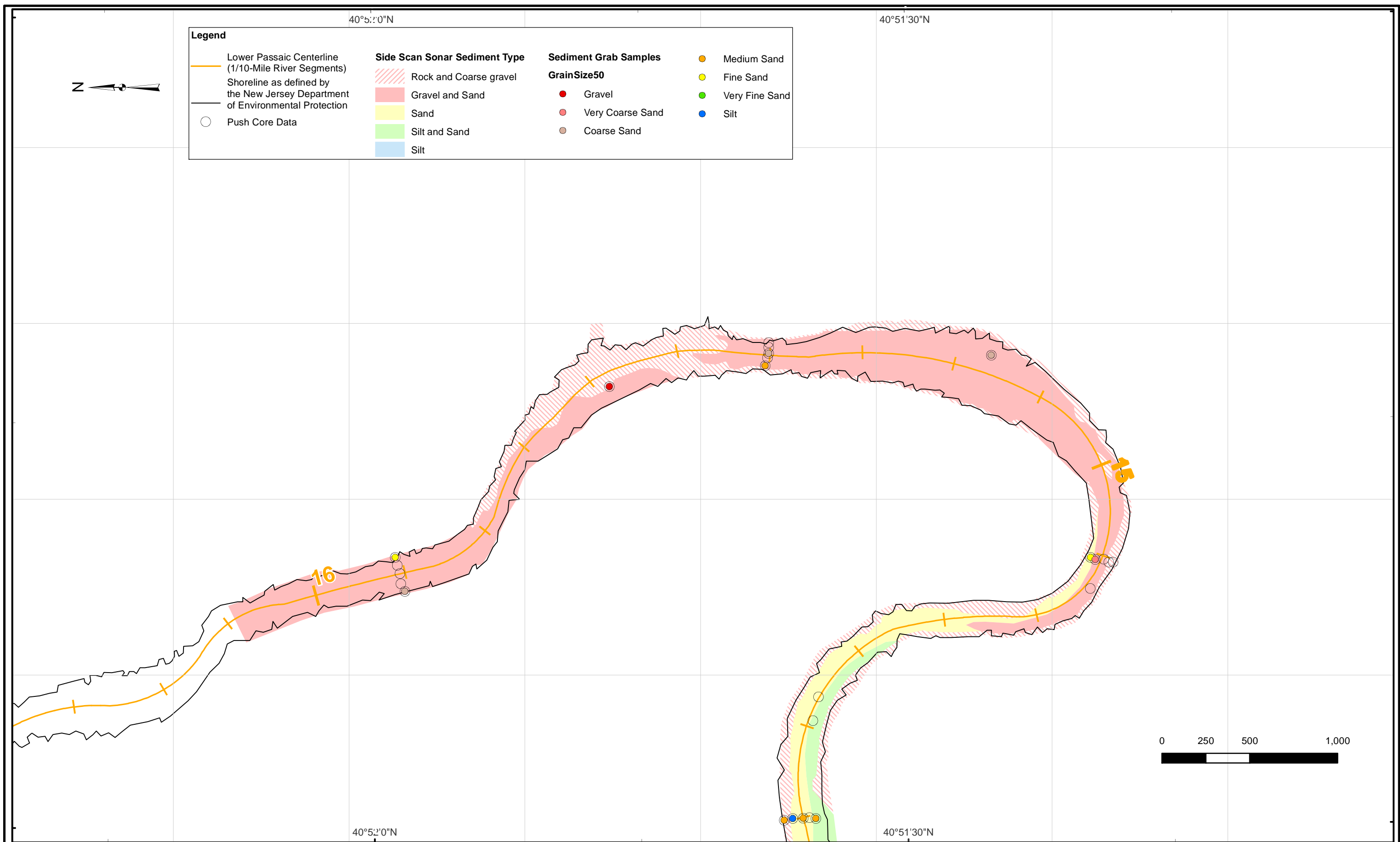


**Side Scan Sonar Sediment Domains and Associated
Sediment Grab Samples**
Lower Passaic River Restoration Project

Figure 11-2o

September 2008



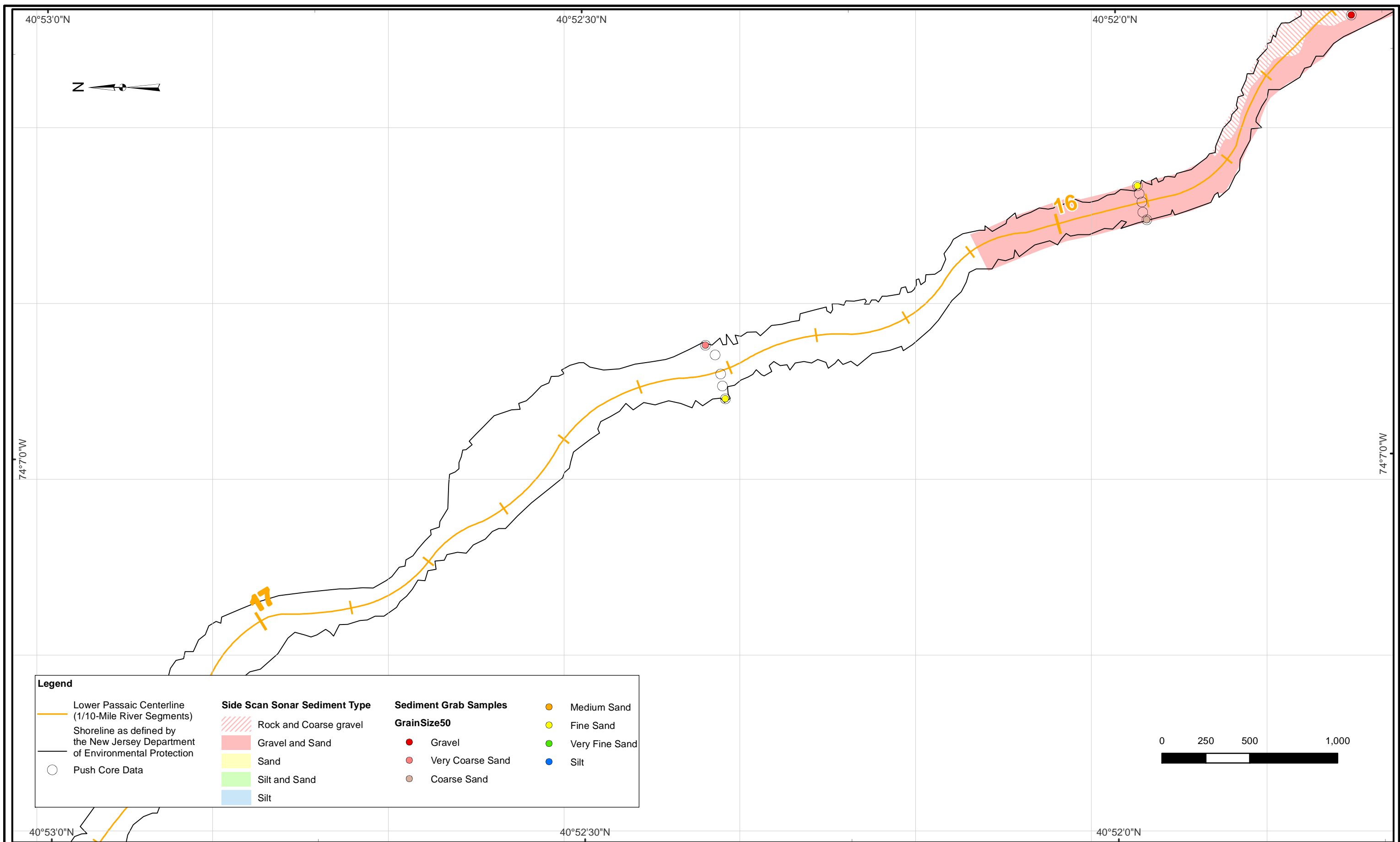


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2p

September 2008



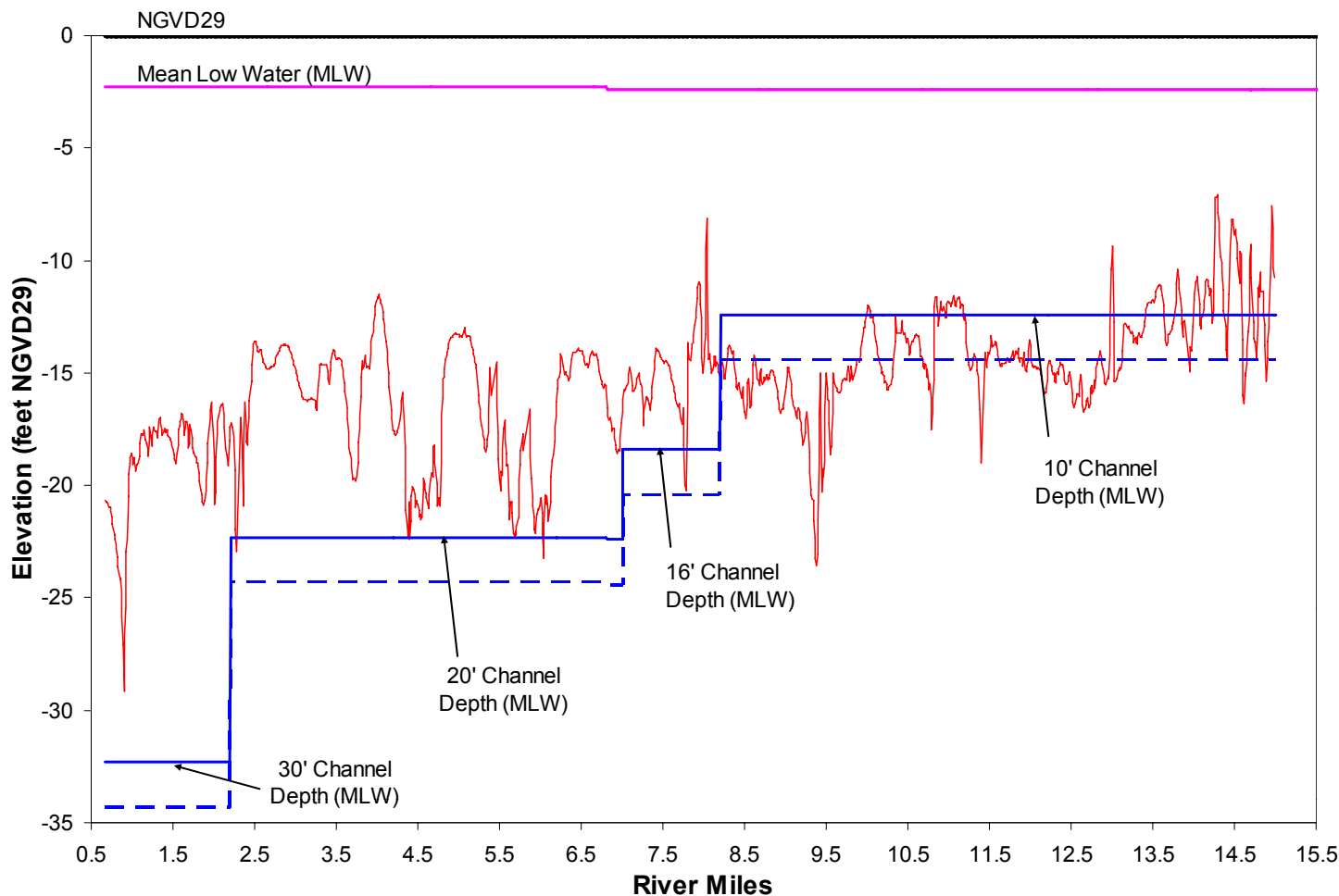


Side Scan Sonar Sediment Domains and Associated Sediment Grab Samples
Lower Passaic River Restoration Project

Figure 11-2q

September 2008





Legend

- Navigational Channel Centerline Bathymetry
- Navigational Channel Depth
- - - Navigational Channel Depth + 2 feet

Notes

Channel depths were dredged relative to mean low water (MLW). The difference between NGVD29 and MLW is approximately 2.3 feet.

Solid blue line represents federally mandated channel depth.

Dashed blue line represents the channel depth +2 feet which would have been the dredged depth in order to maintain the federally specified channel depth.

Elevation data estimated from 2004 bathymetric data surveyed by Rogers Survey, Inc. for USACE.

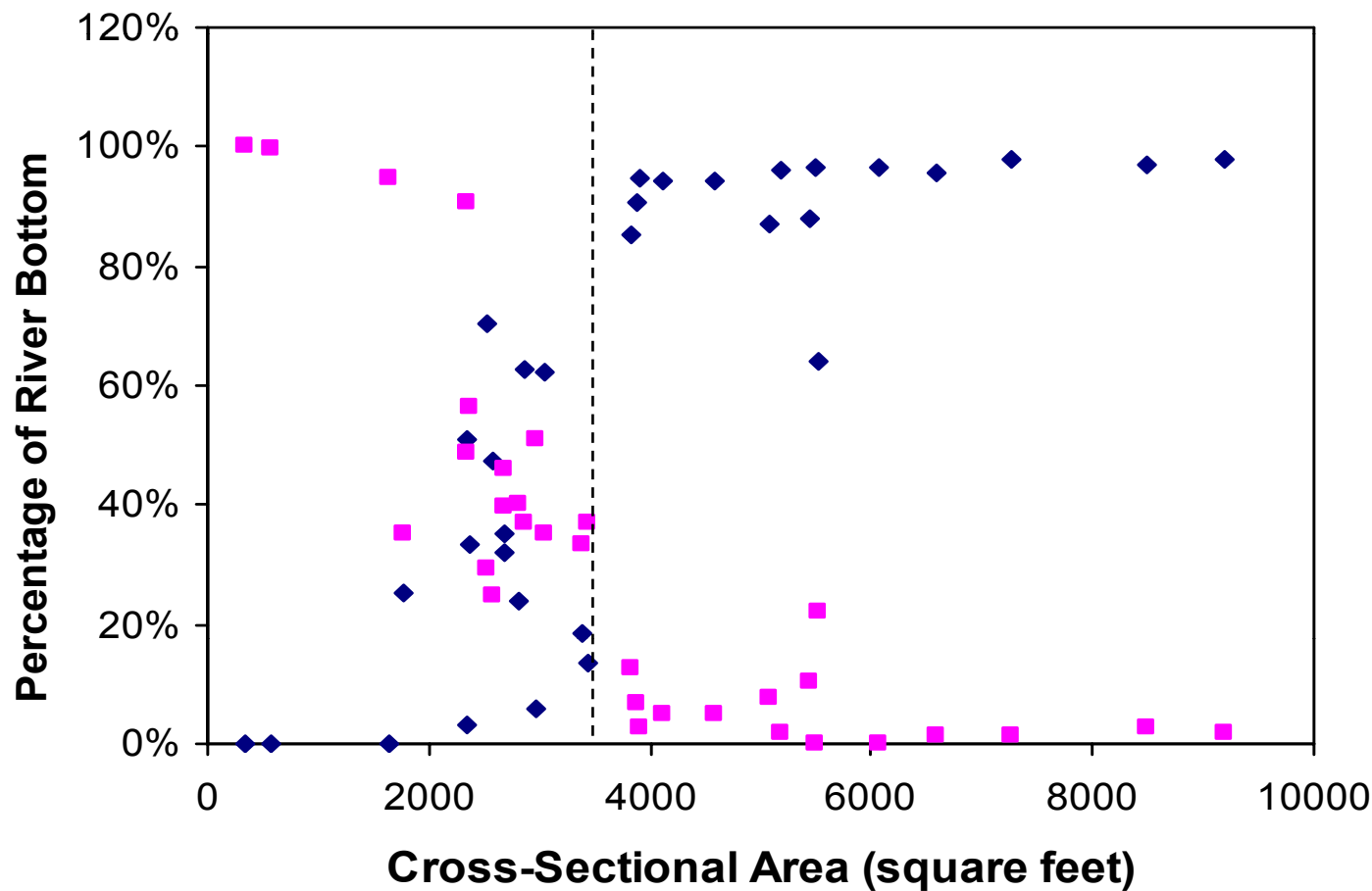


River Bottom Elevation and Authorized Channel Depths

Lower Passaic River Restoration Project

Figure 11-3

September 2008



Legend

- ◆ Fine-grained sediment
- Coarse-grained sediment
- Highlights the change to a river cross sectional area of 3,500 square feet

Notes

Cross-sectional area estimated from 2004 bathymetric data surveyed by Rogers Survey, Inc. for USACE.

Sediment texture was evaluated based on data interpolated by Aqua Survey, Inc. using side-scan sonar images (Aqua Survey, Inc., 2006). Sediment texture data extends from RM0 to RM16.5.

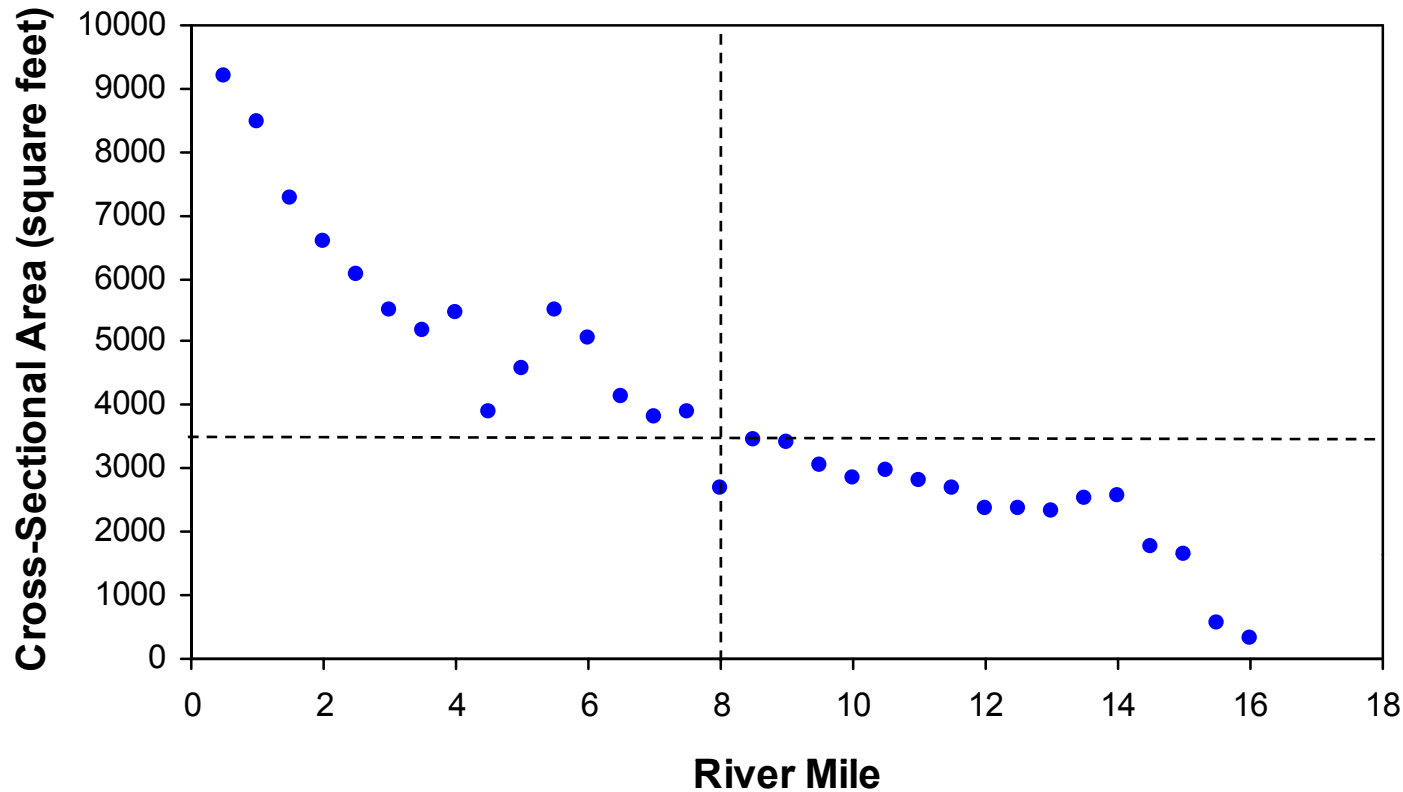
Refer to Figure 1-6 for relationship between river mile and cross-sectional area.



Variation of Lower Passaic River Sediment Type with
River Cross-Sectional Area
Lower Passaic River Restoration Project

Figure 11-4

February 2007



Legend

- Cross-Sectional Area (square feet)

-- Highlights the change to a river cross sectional area of 3,500 square feet at RM8

Notes

Cross-sectional area estimated from 2004 bathymetric data surveyed by Rogers Survey, Inc. for USACE.

Cross-sectional area refers to the water filled area of the river channel when water level is equal to 0 feet elevation at NGVD29.

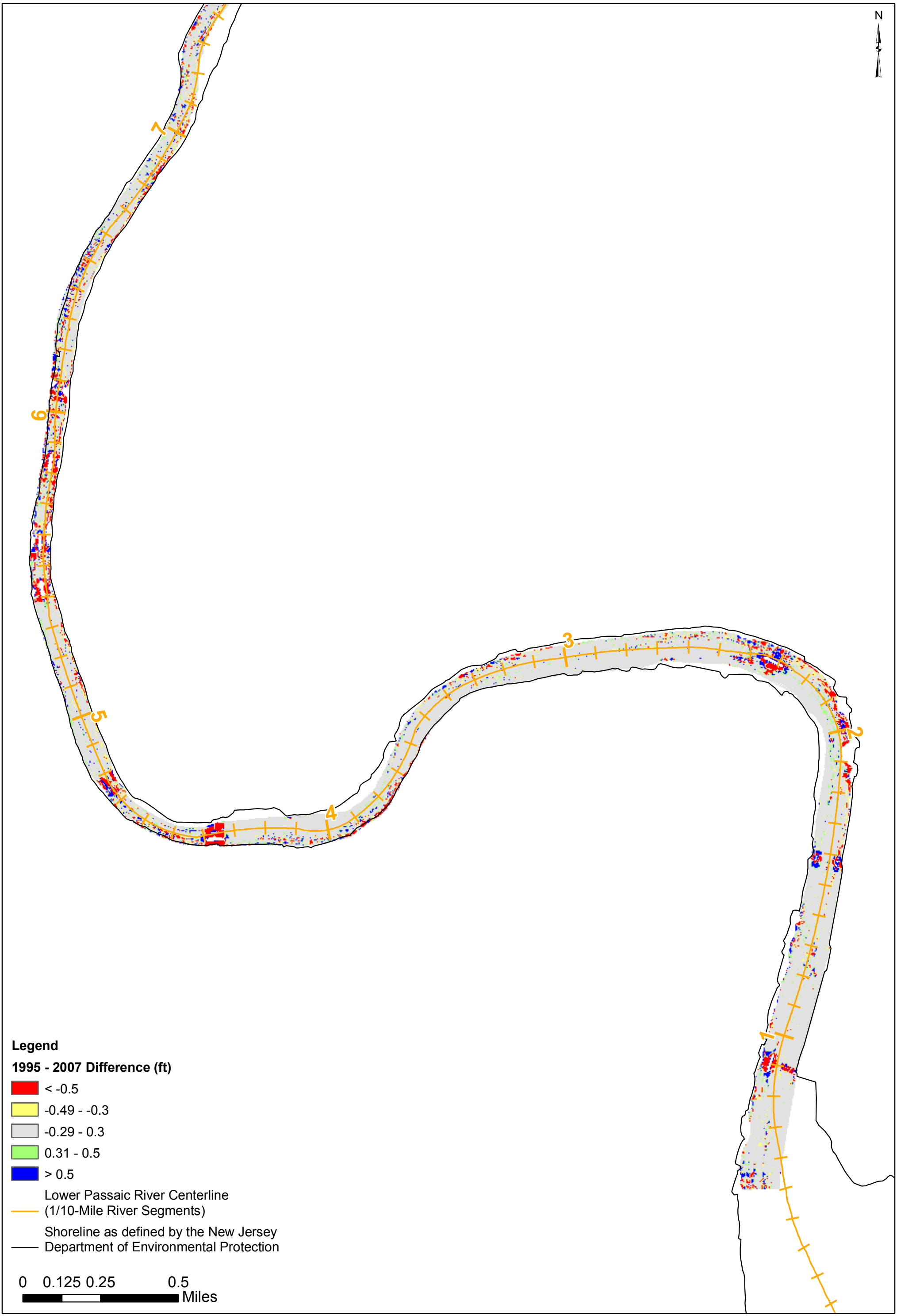


Variation of Lower Passaic River Cross-Sectional Area with River Mile

Lower Passaic River Restoration Project

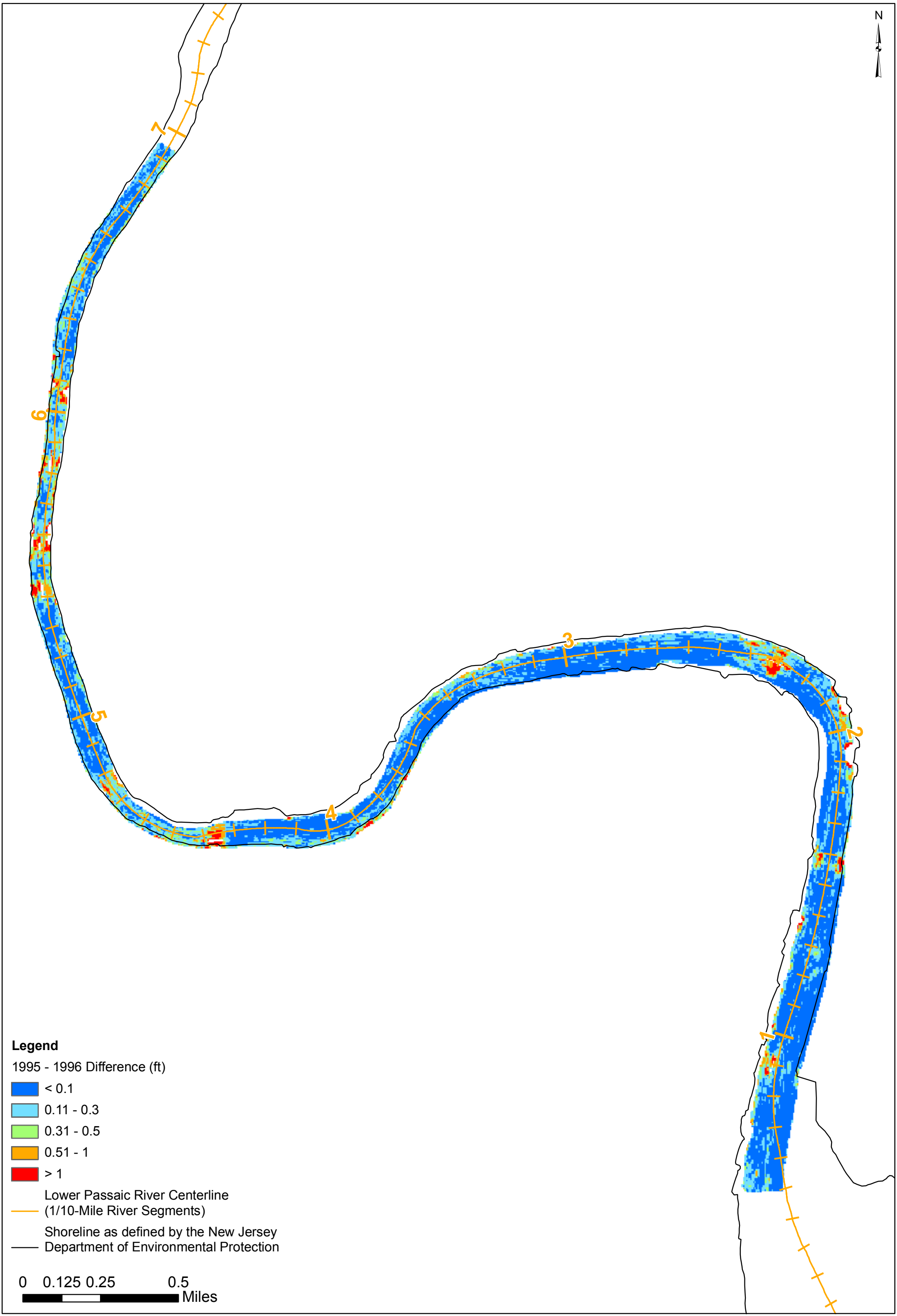
Figure 11-5

February 2007



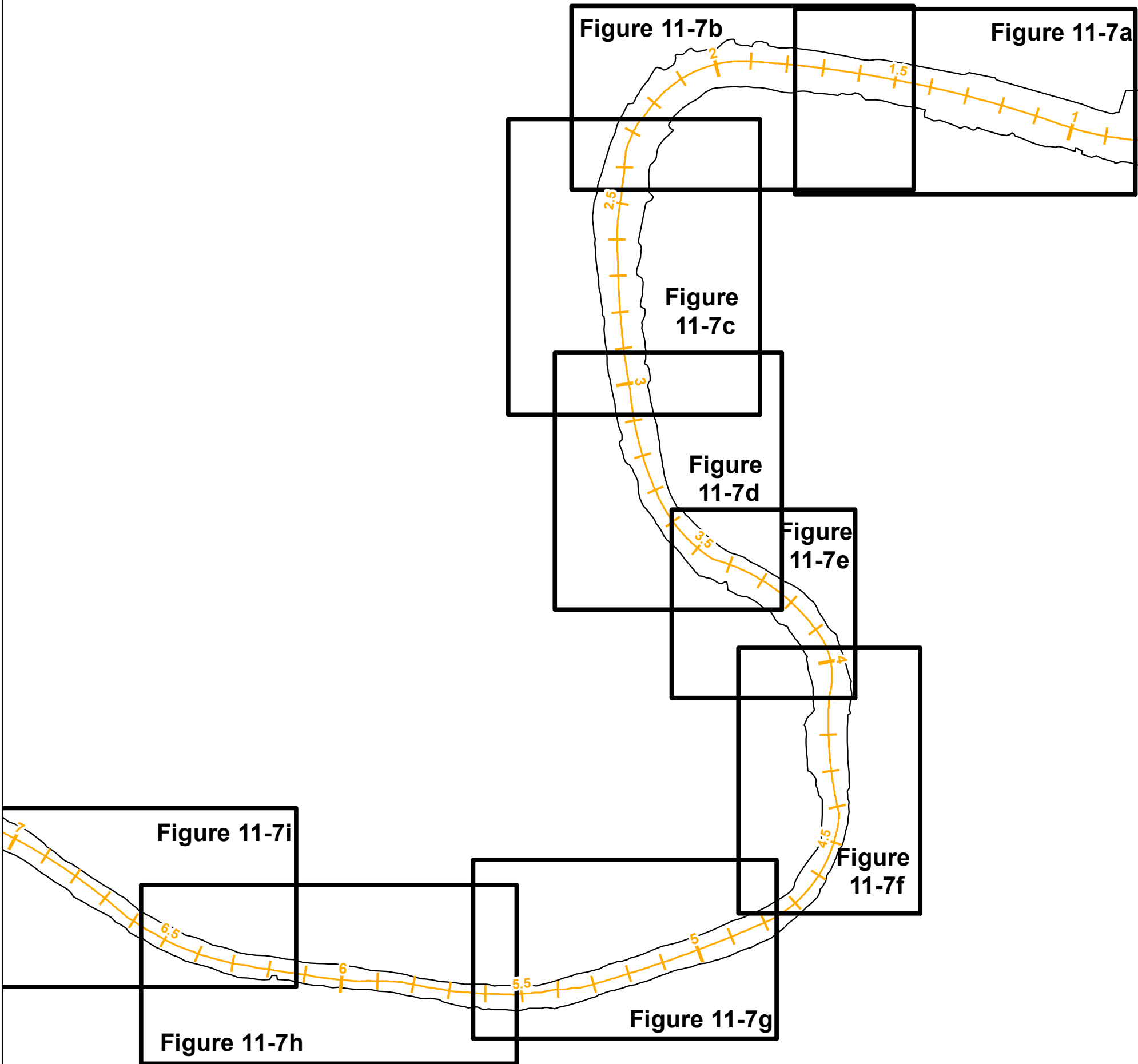
TIN to 2007 Grid Uncertainty Evaluation

Lower Passaic River Restoration Project



TIN to TIN Uncertainty Evaluation

Lower Passaic River Restoration Project



Legend
— Shoreline as defined by NJDEP
— Lower Passaic River Centerline
(1/10 River Mile Segments)

0 1,000 2,000
Feet

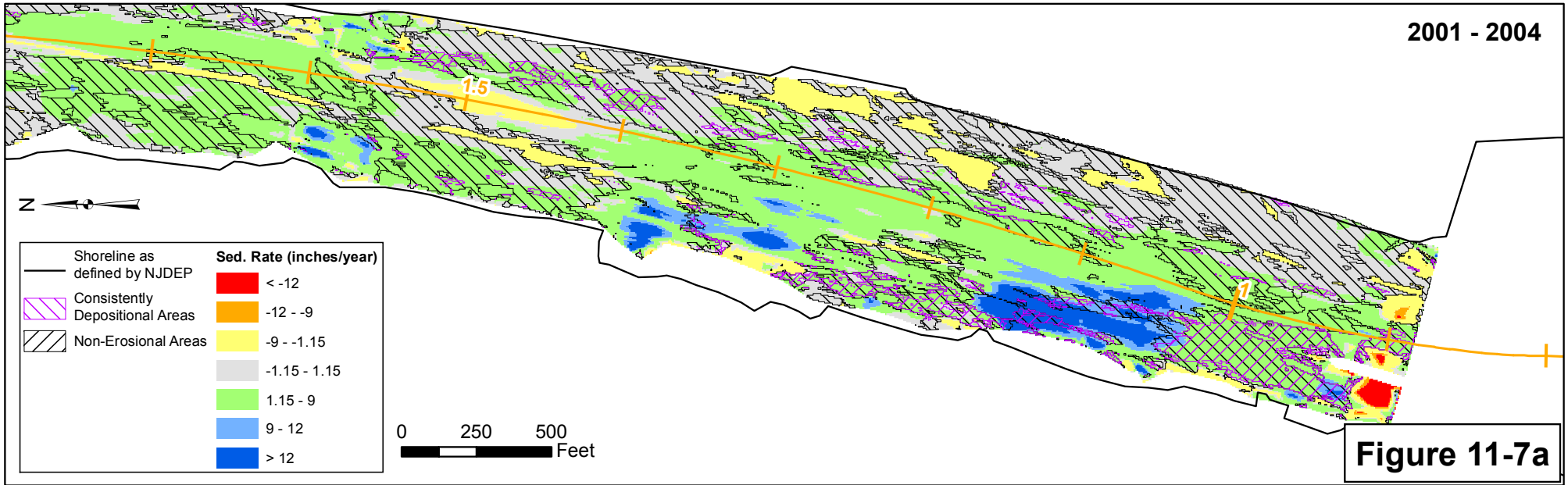
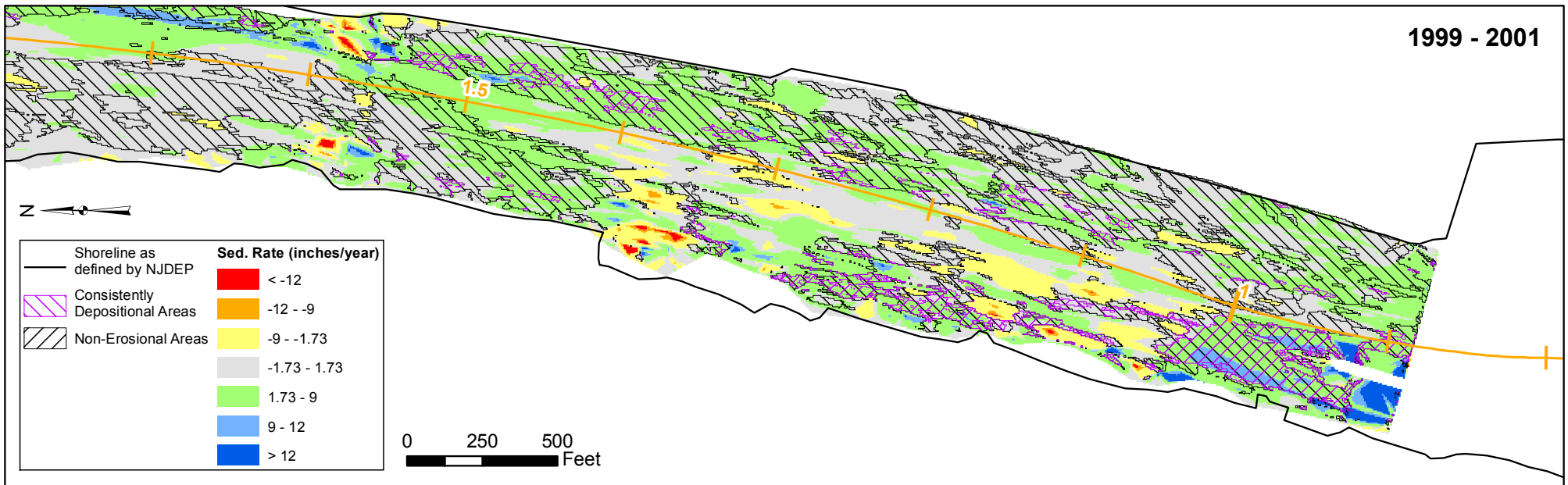
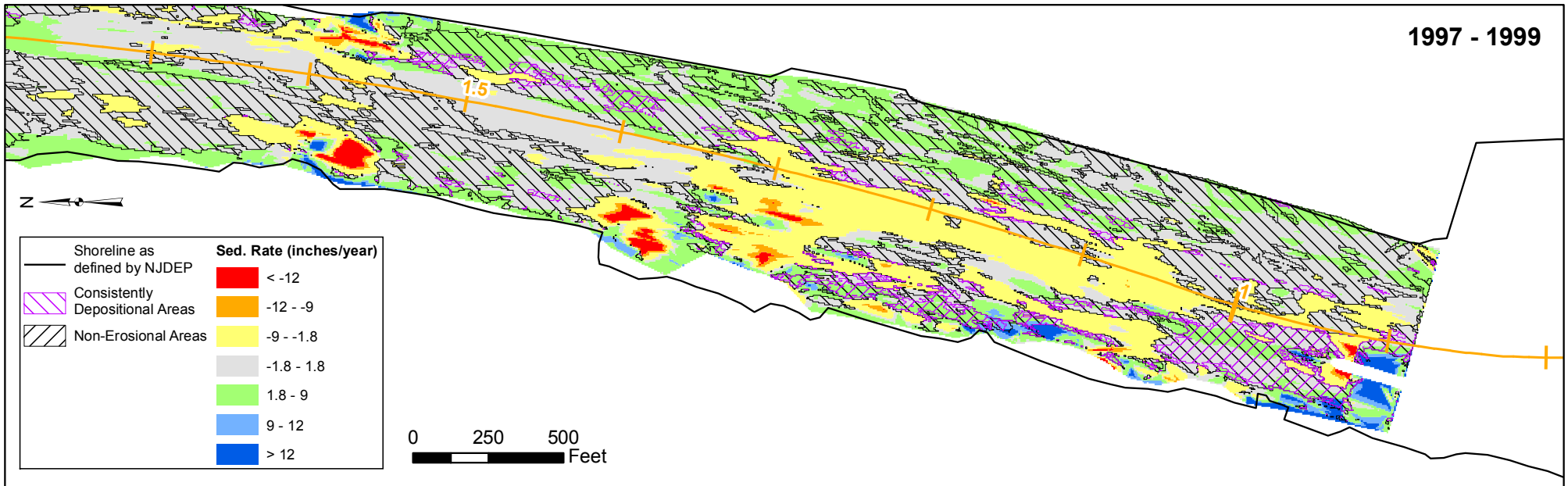
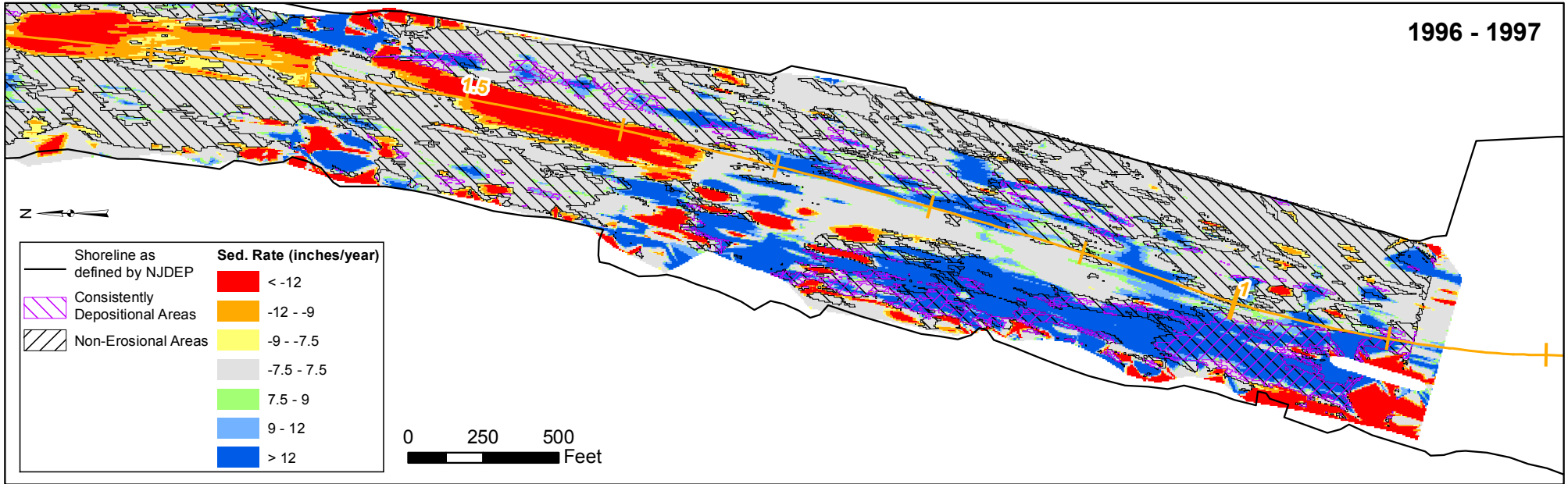
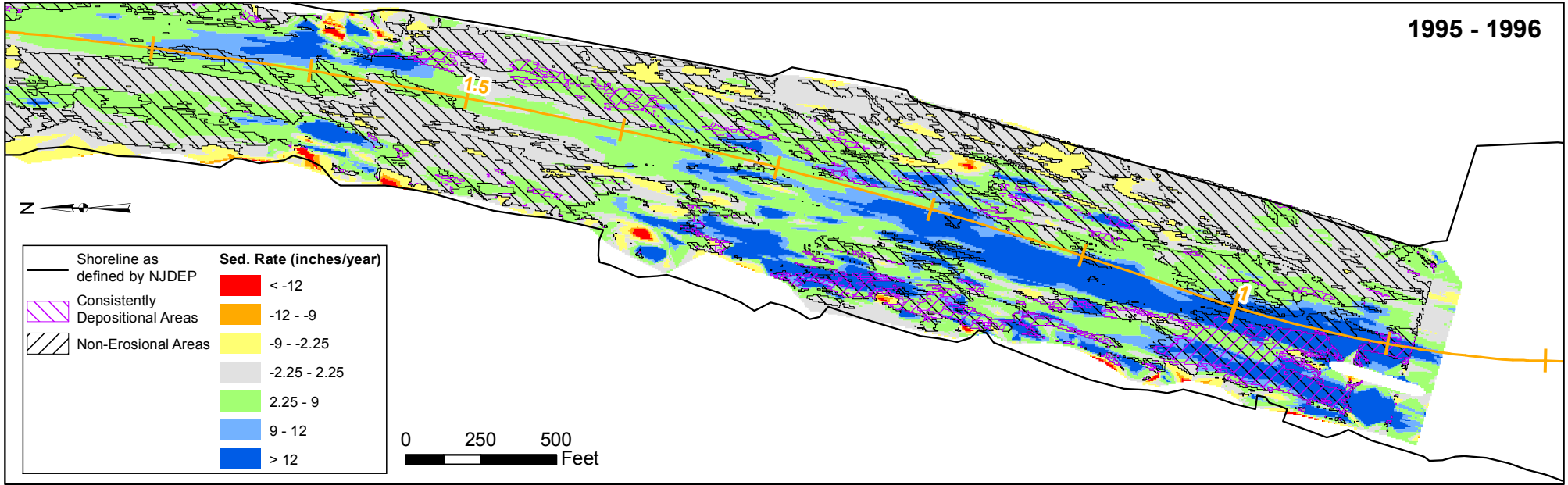


Figure 11-7a

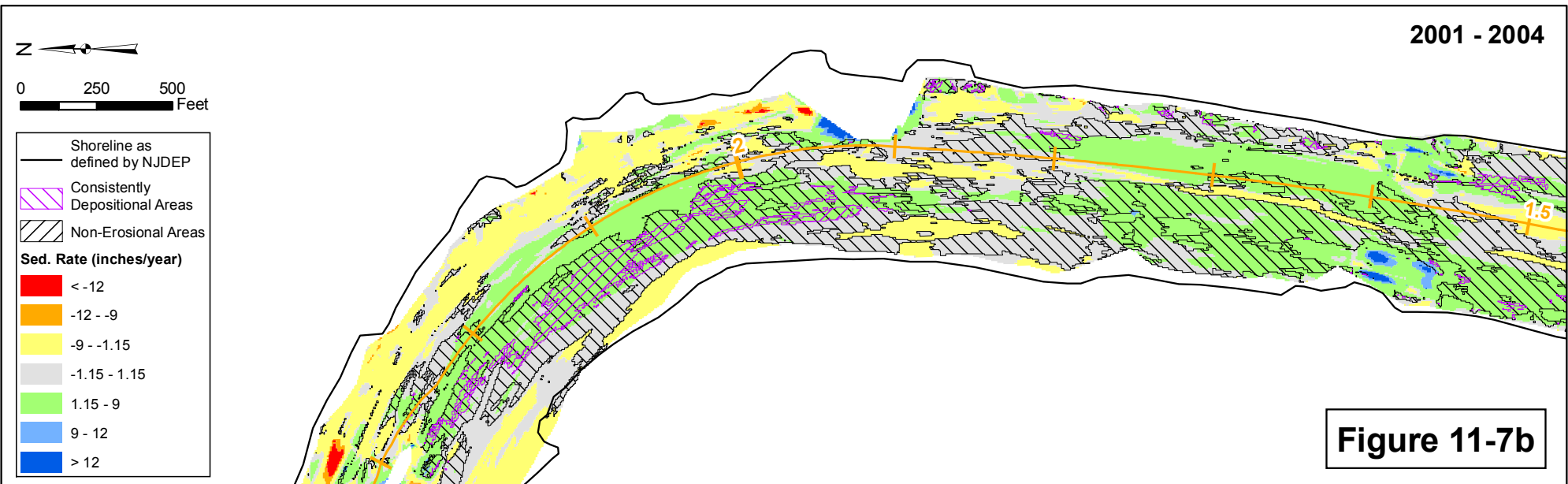
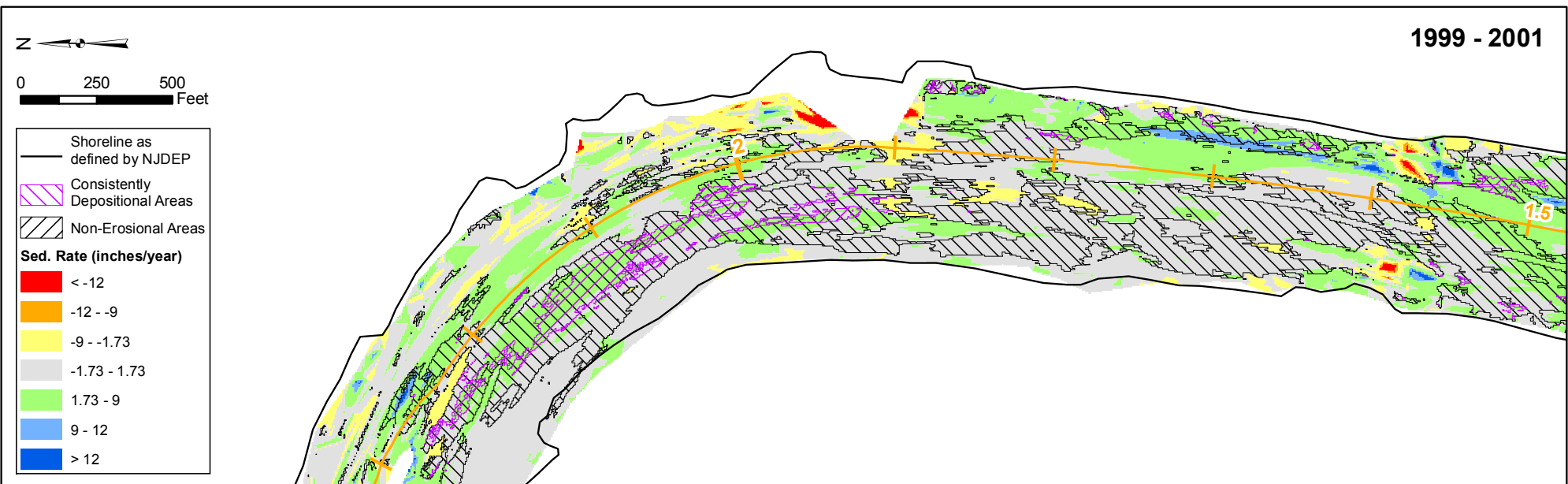
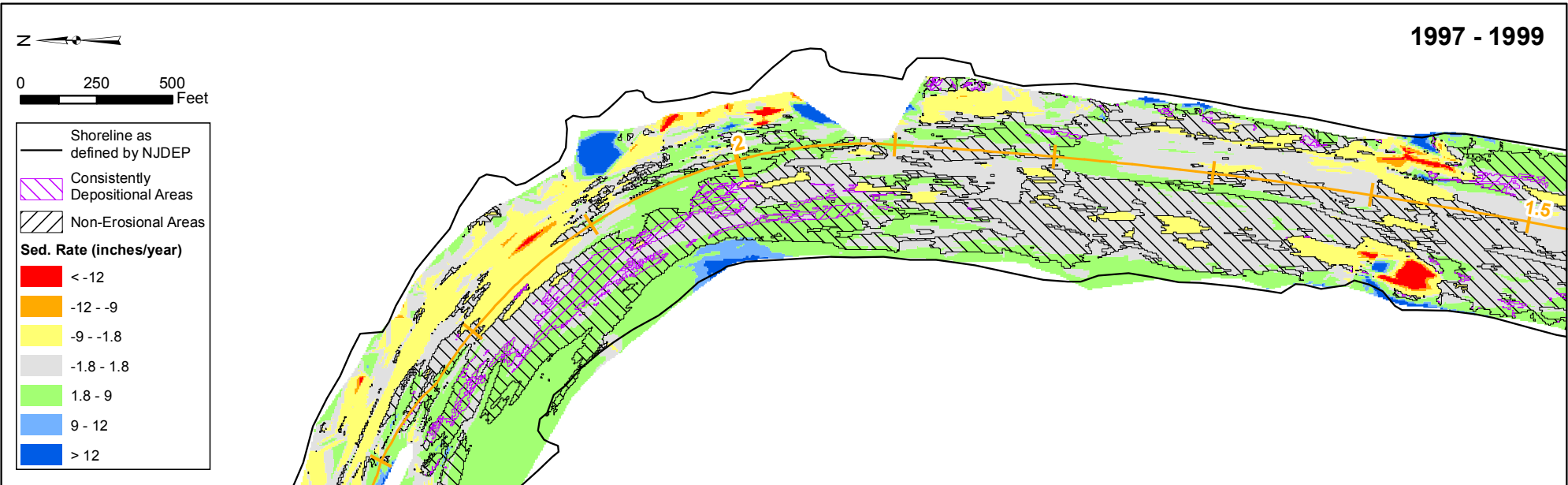
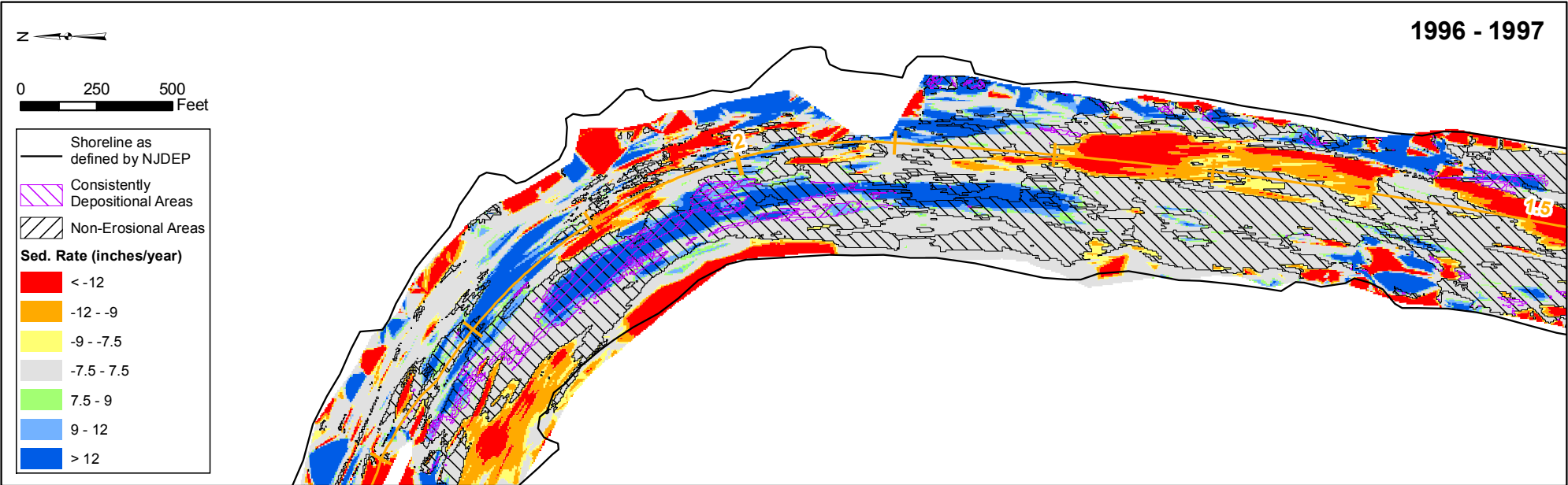
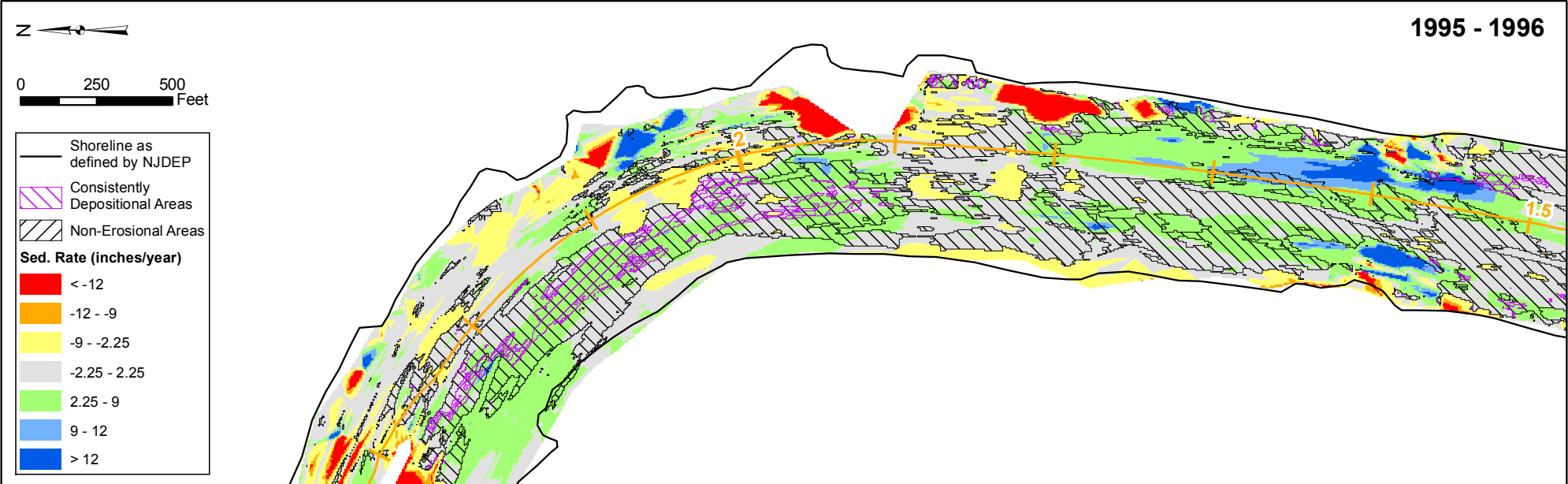


Figure 11-7b

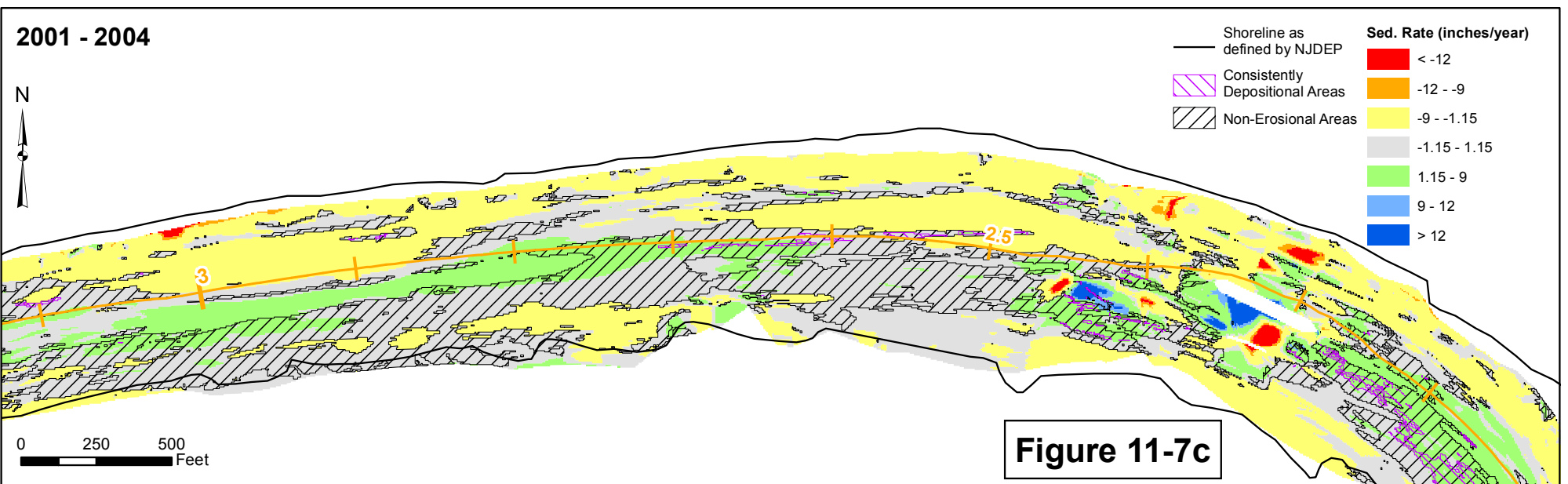
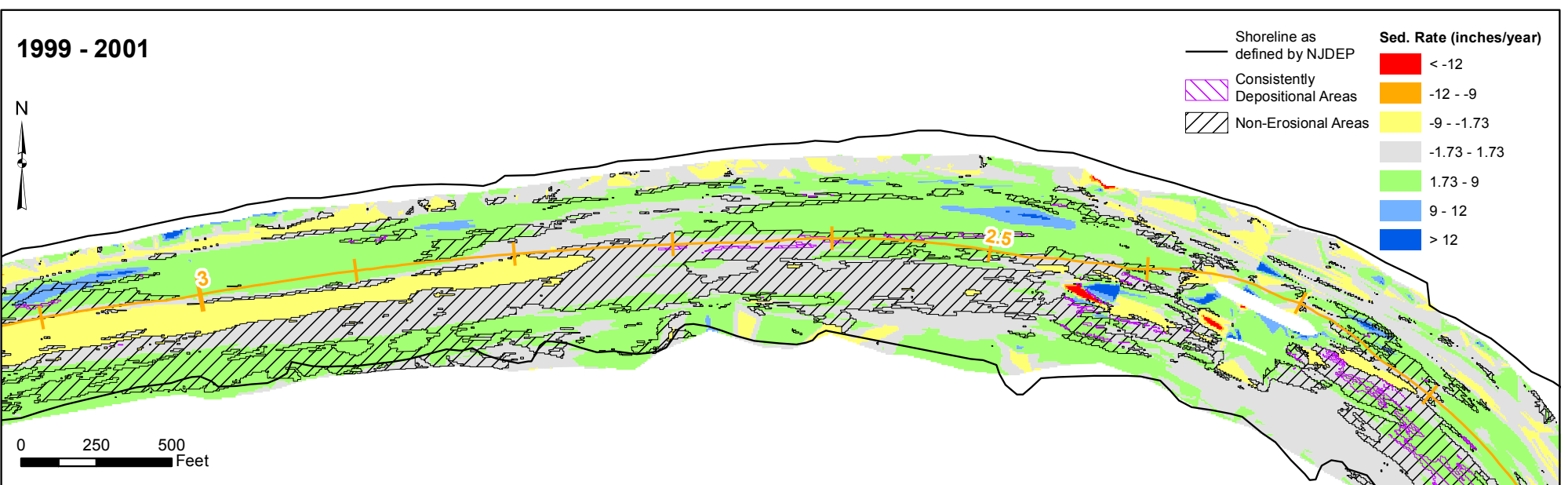
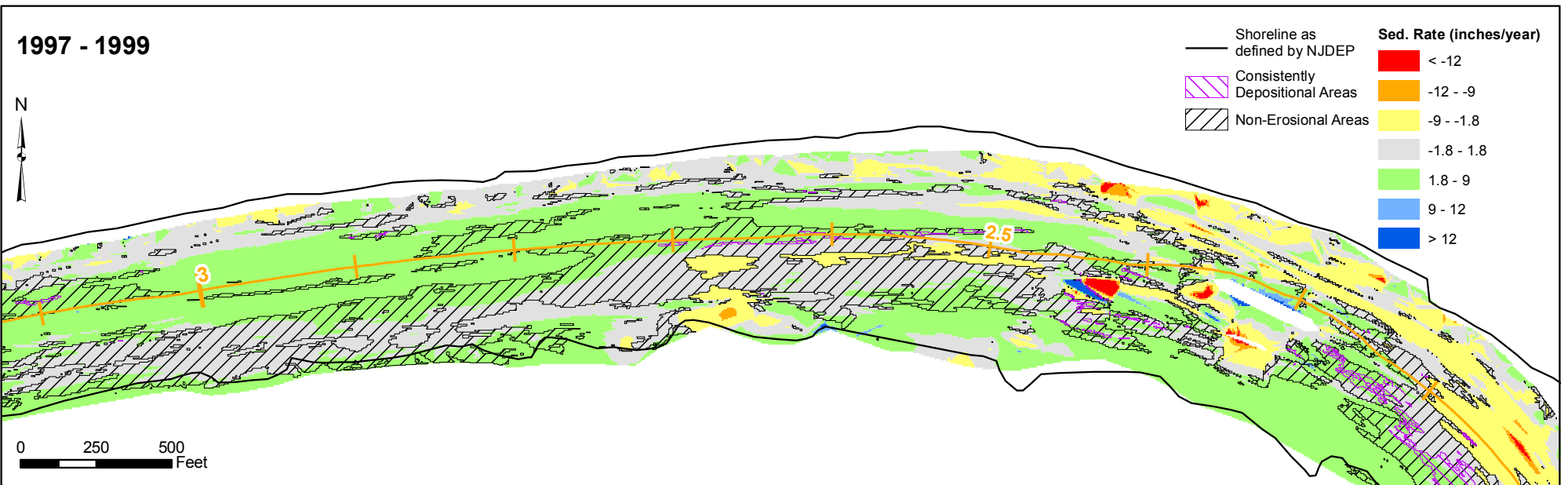
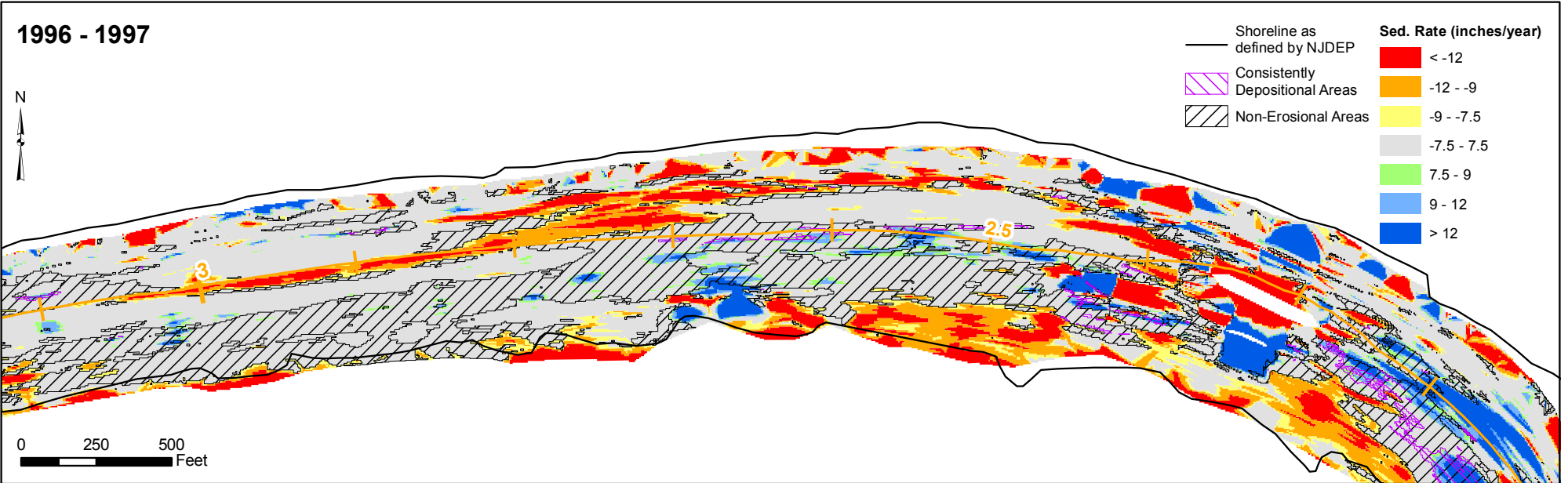
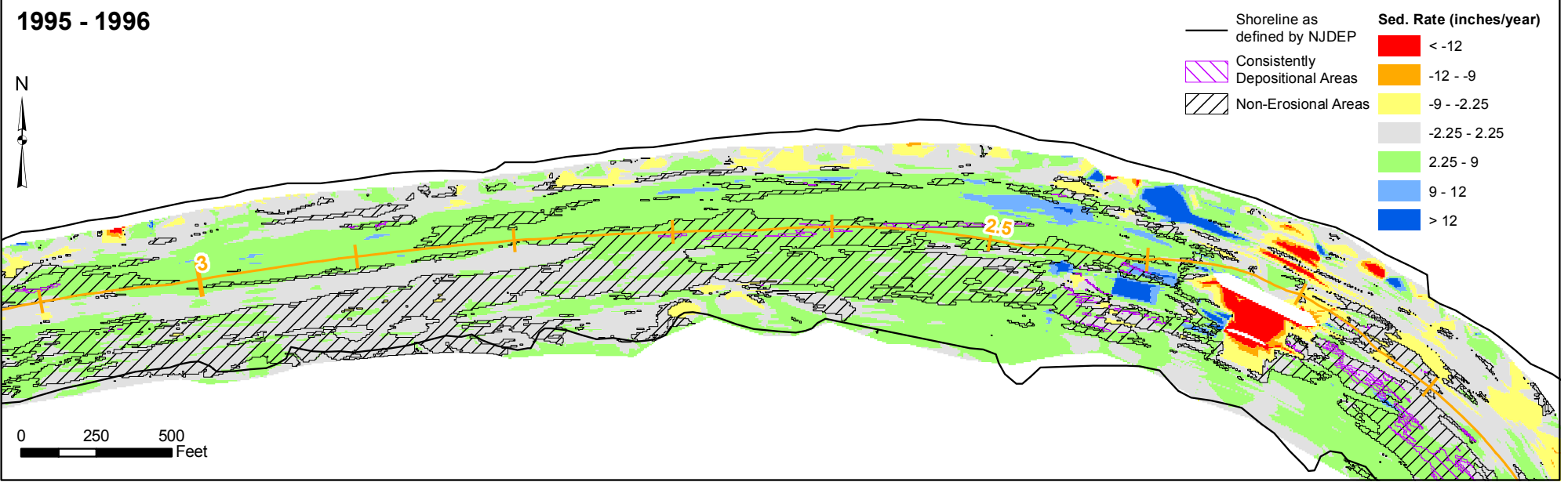
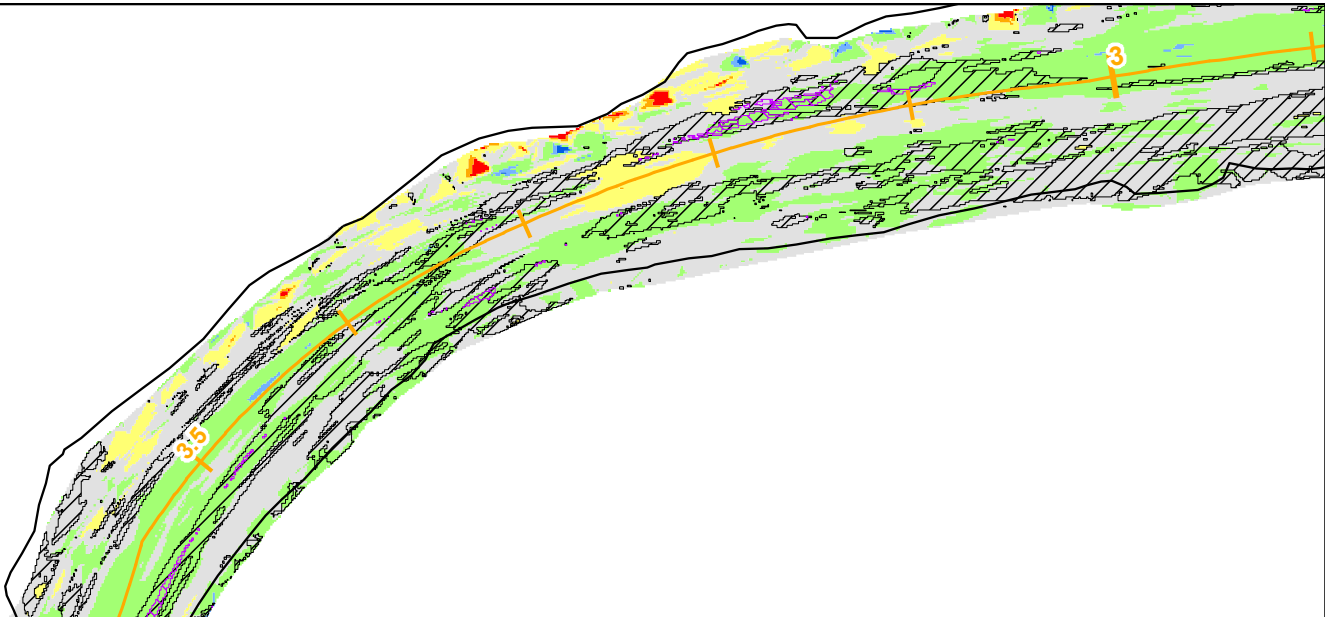
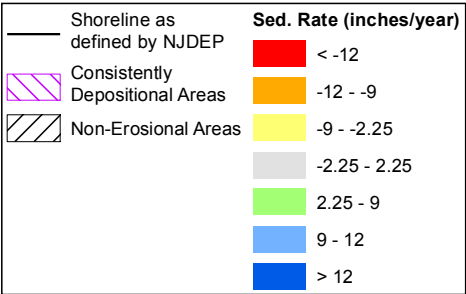
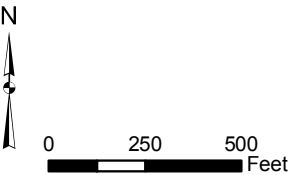
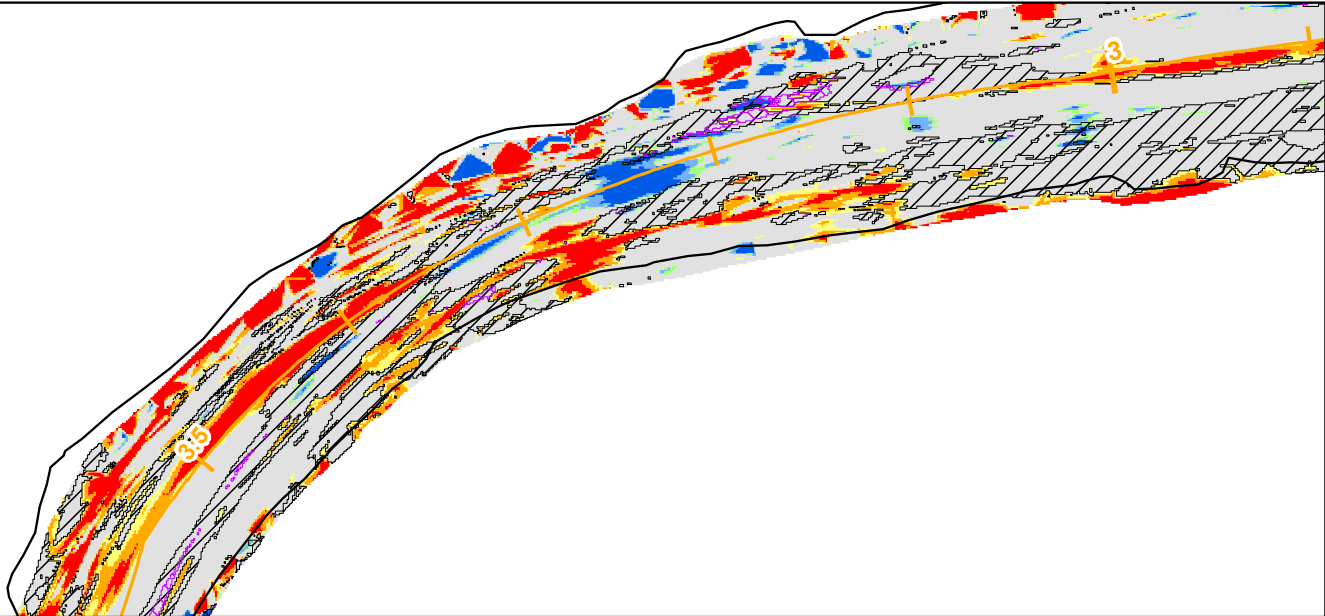
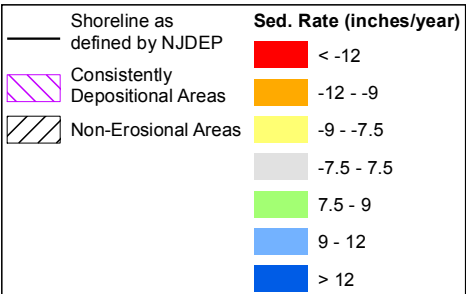
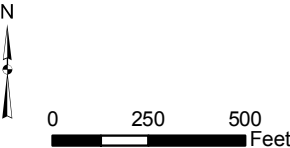


Figure 11-7c

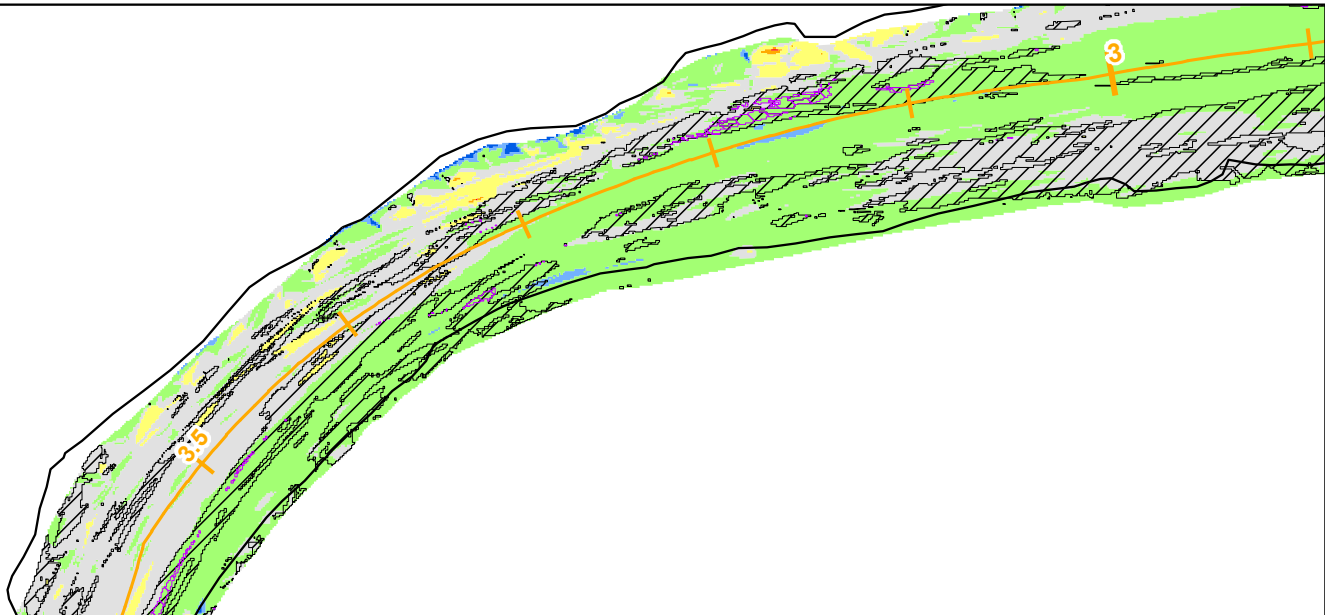
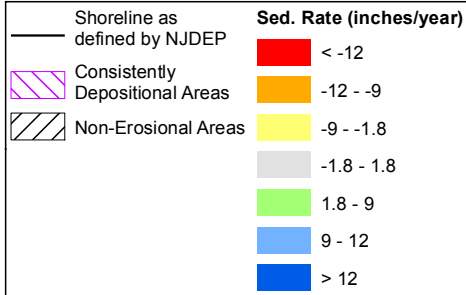
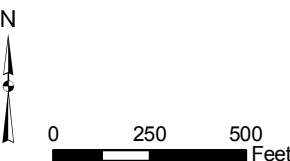
1995 - 1996



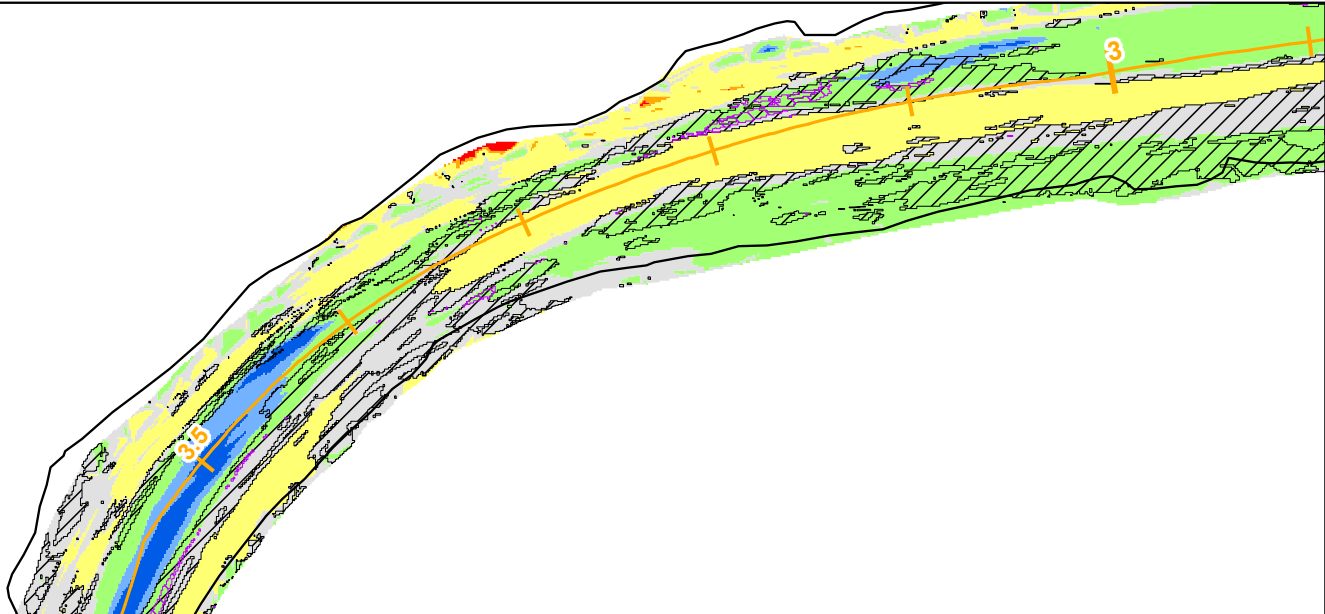
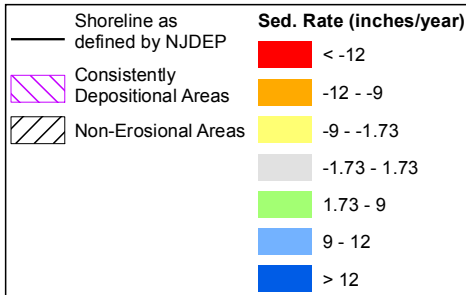
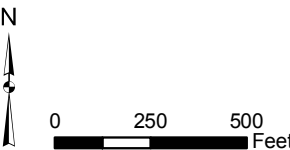
1996 - 1997



1997 - 1999



1999 - 2001



2001 - 2004

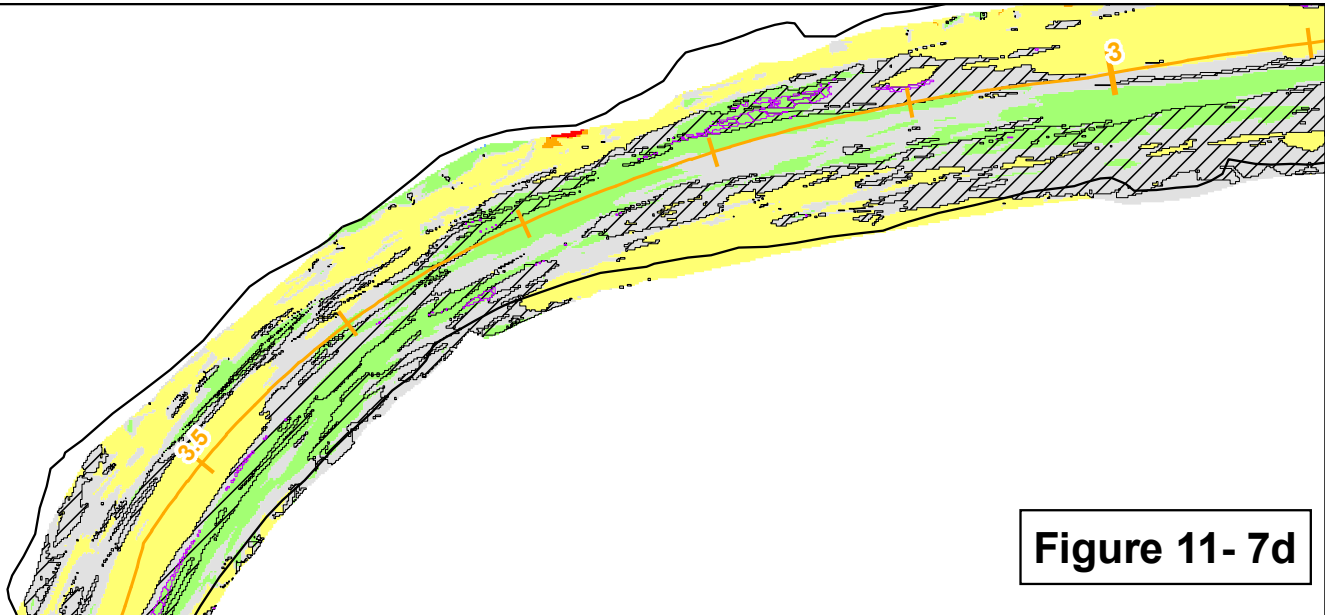
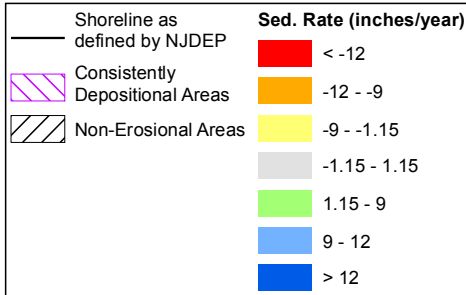
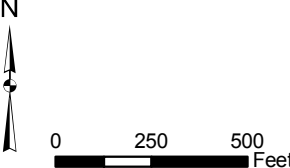
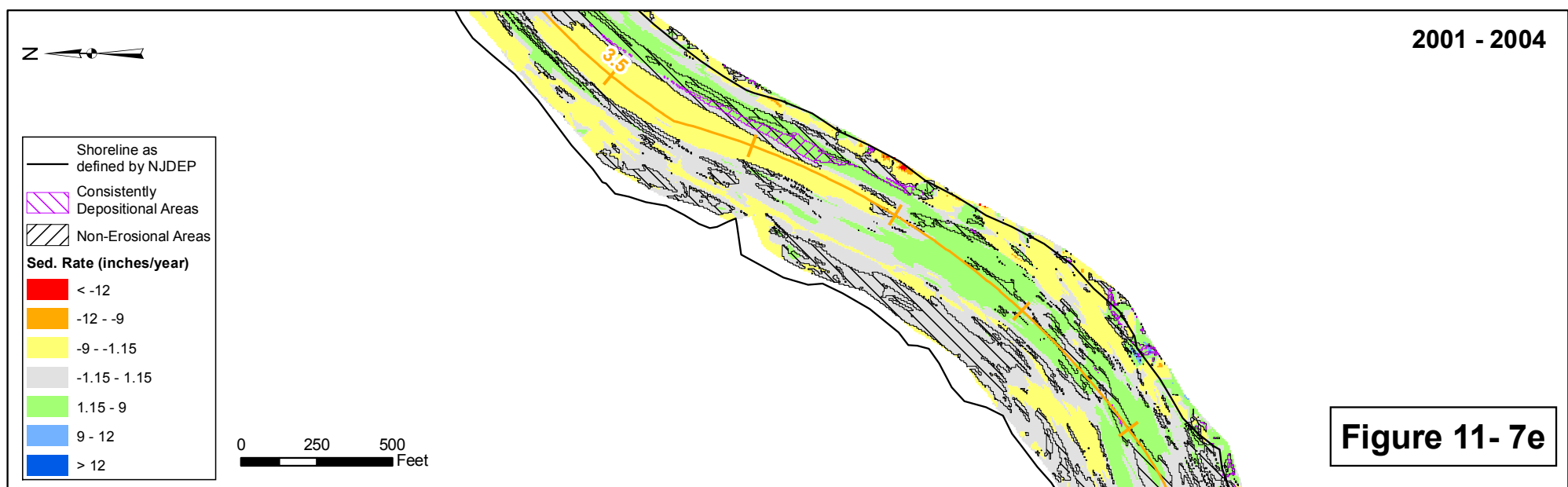
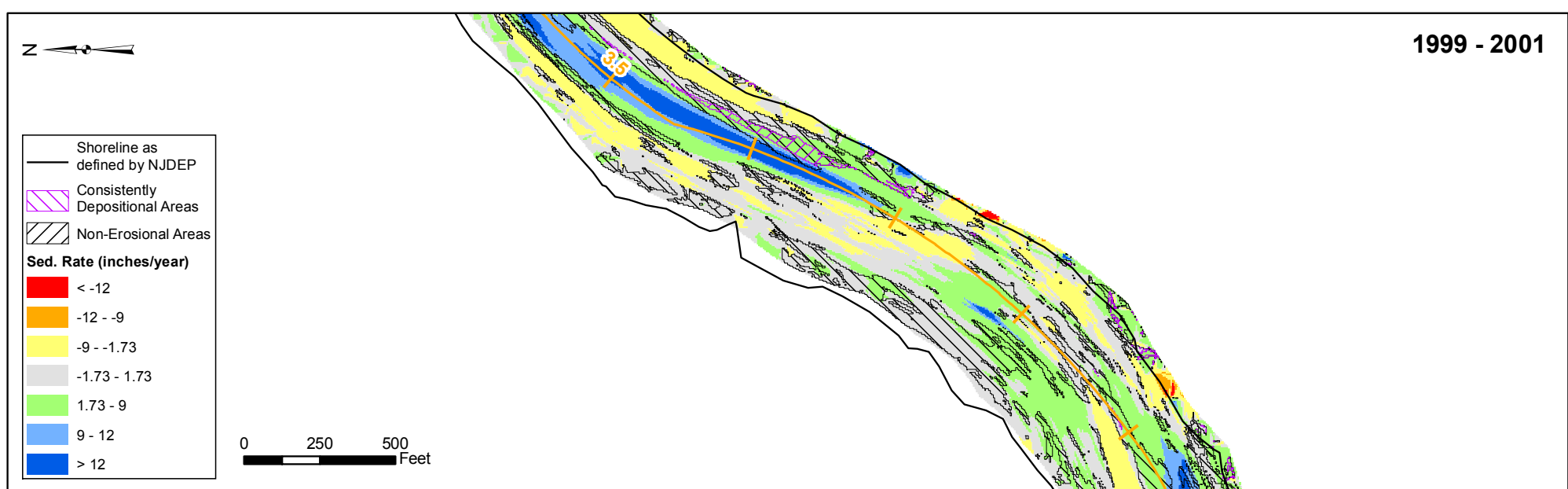
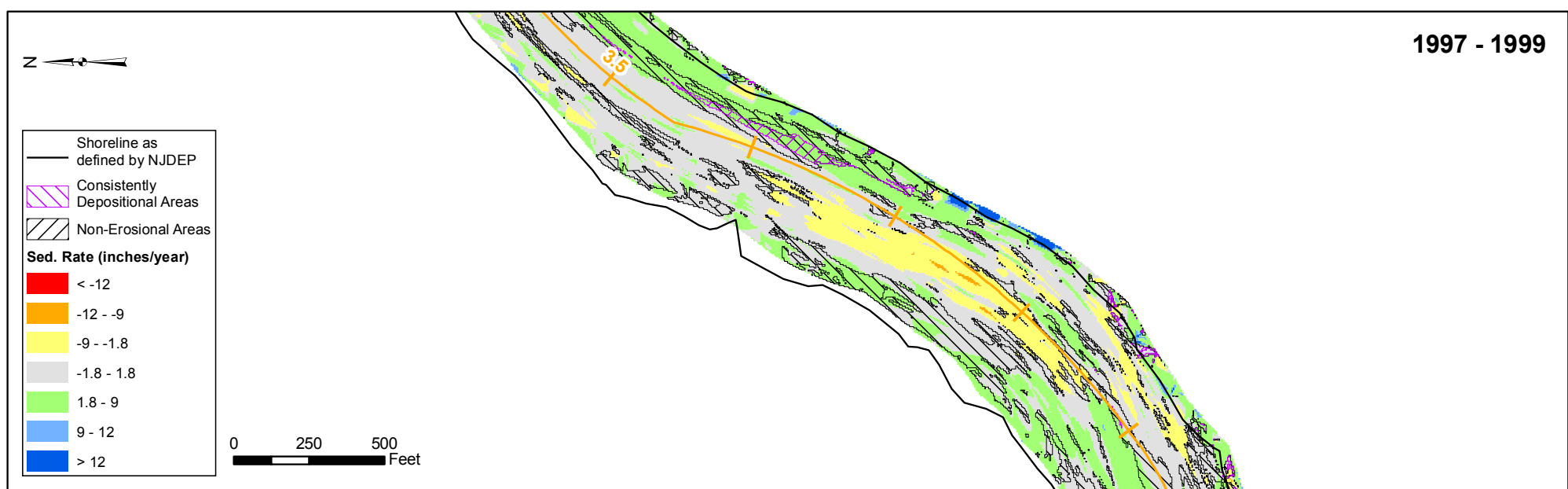
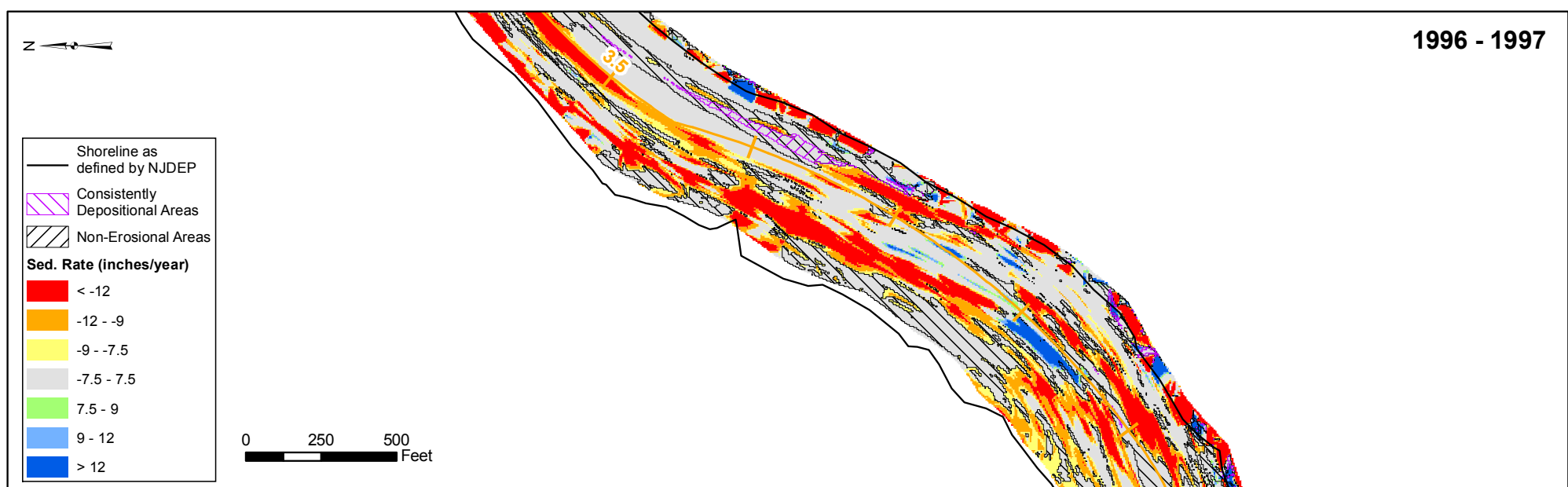
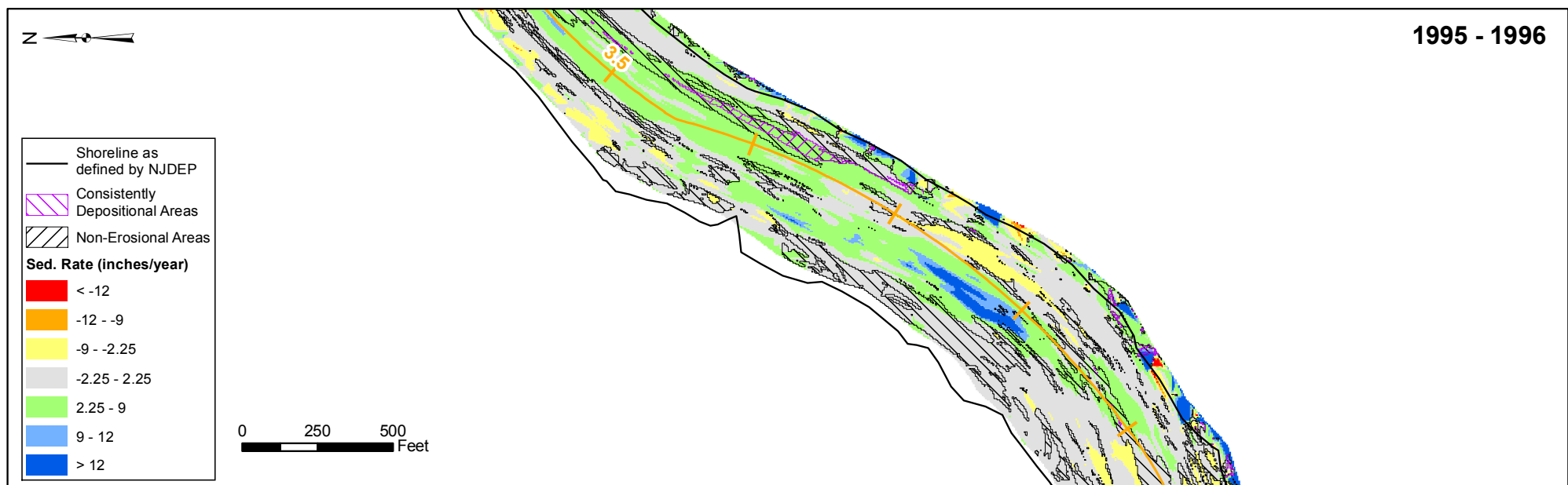


Figure 11- 7d



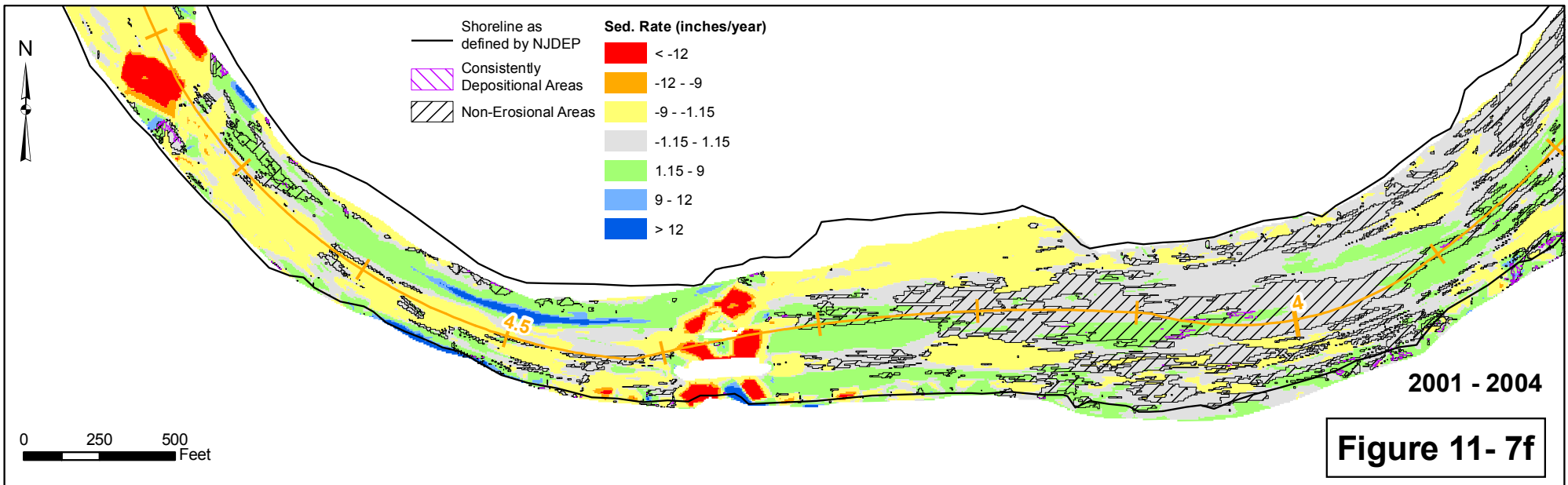
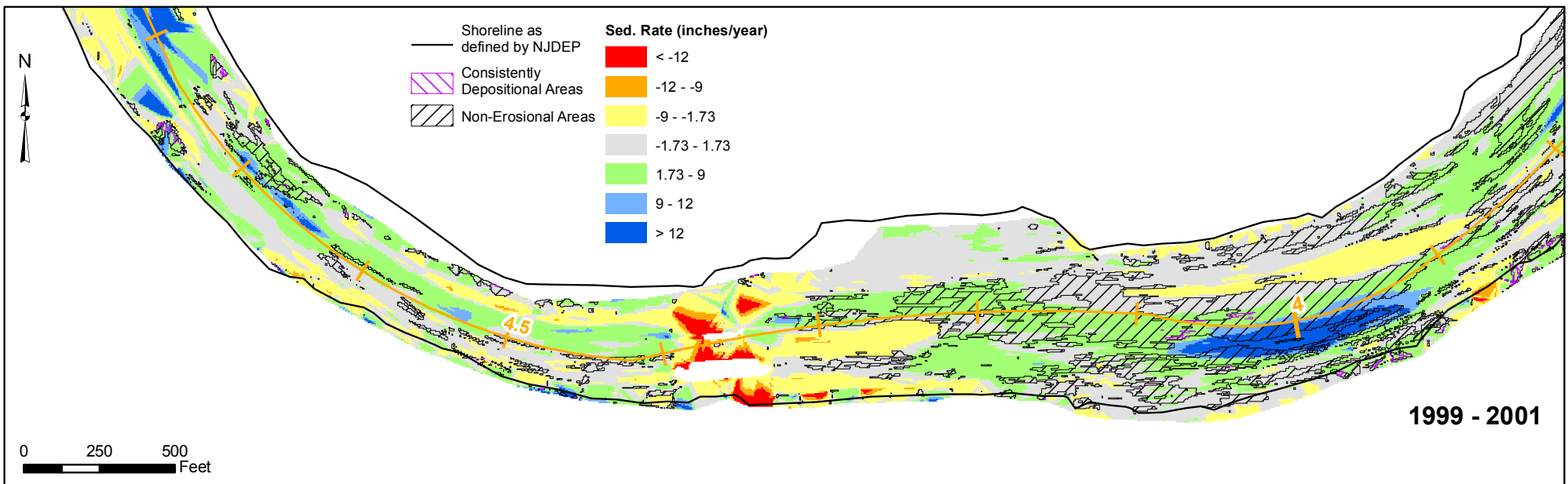
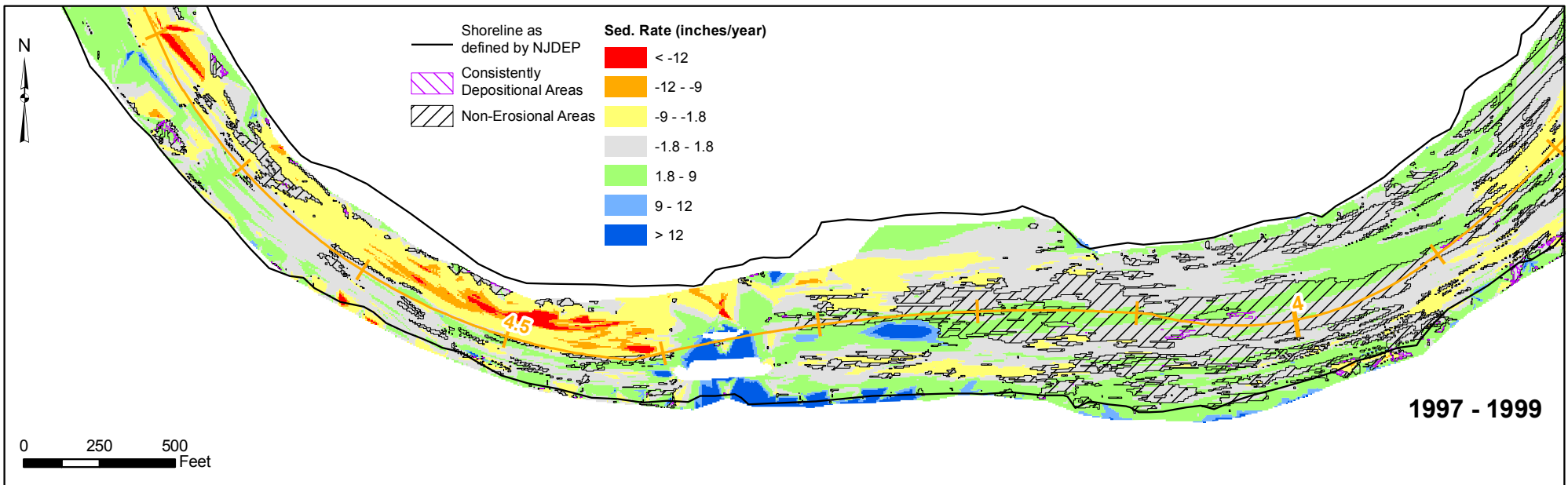
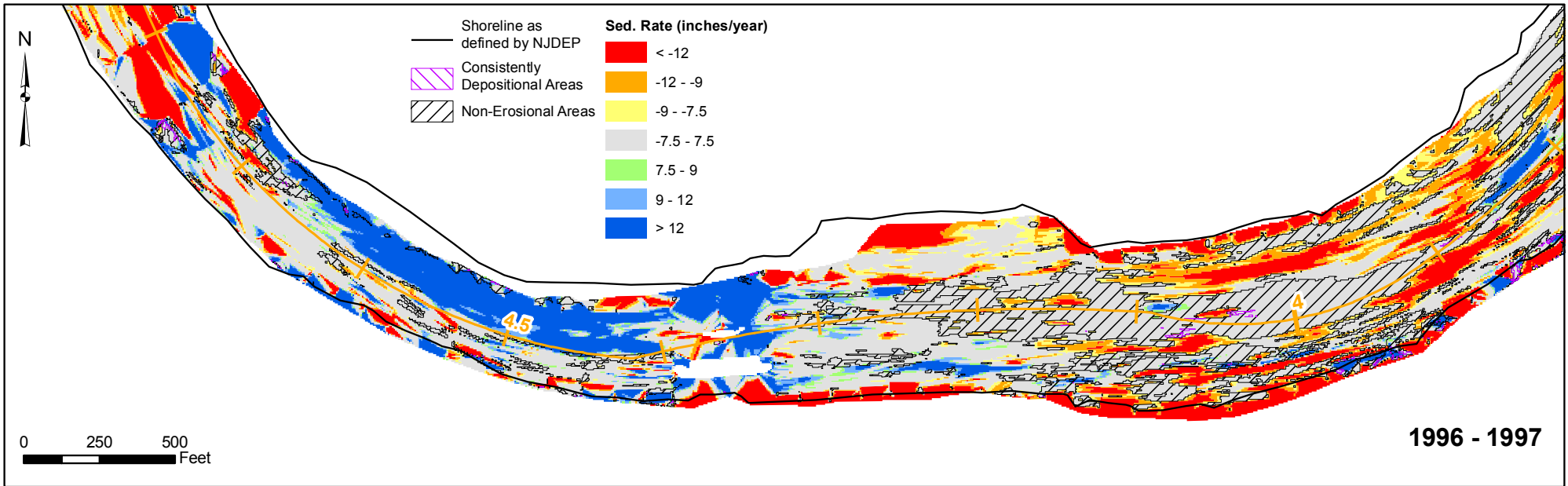
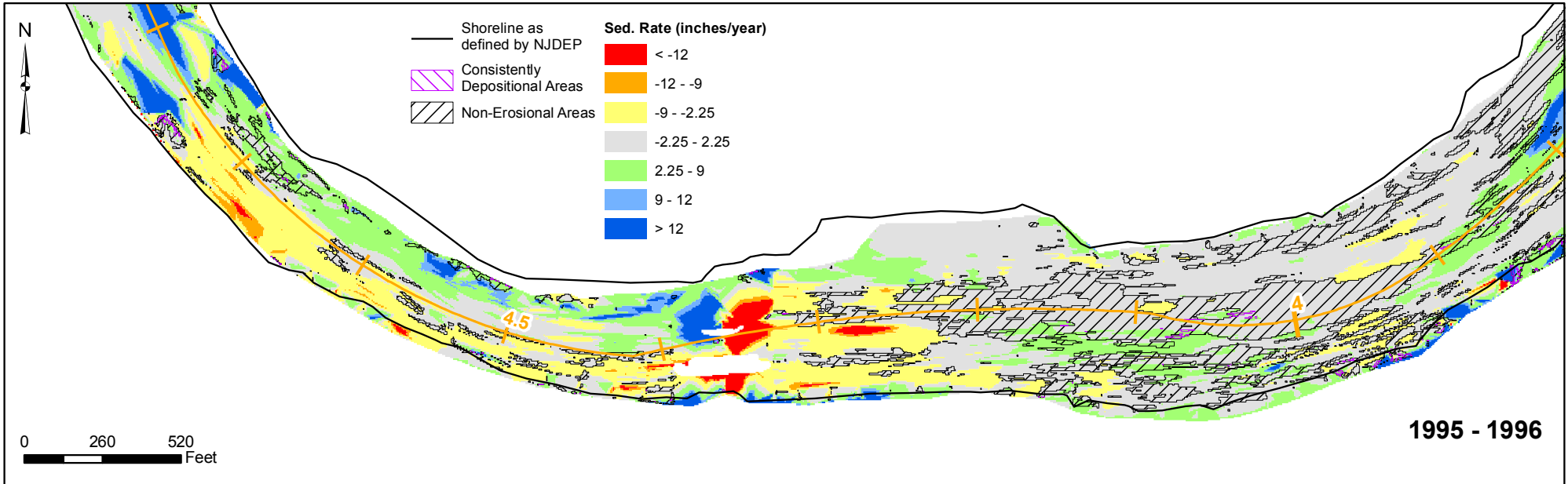
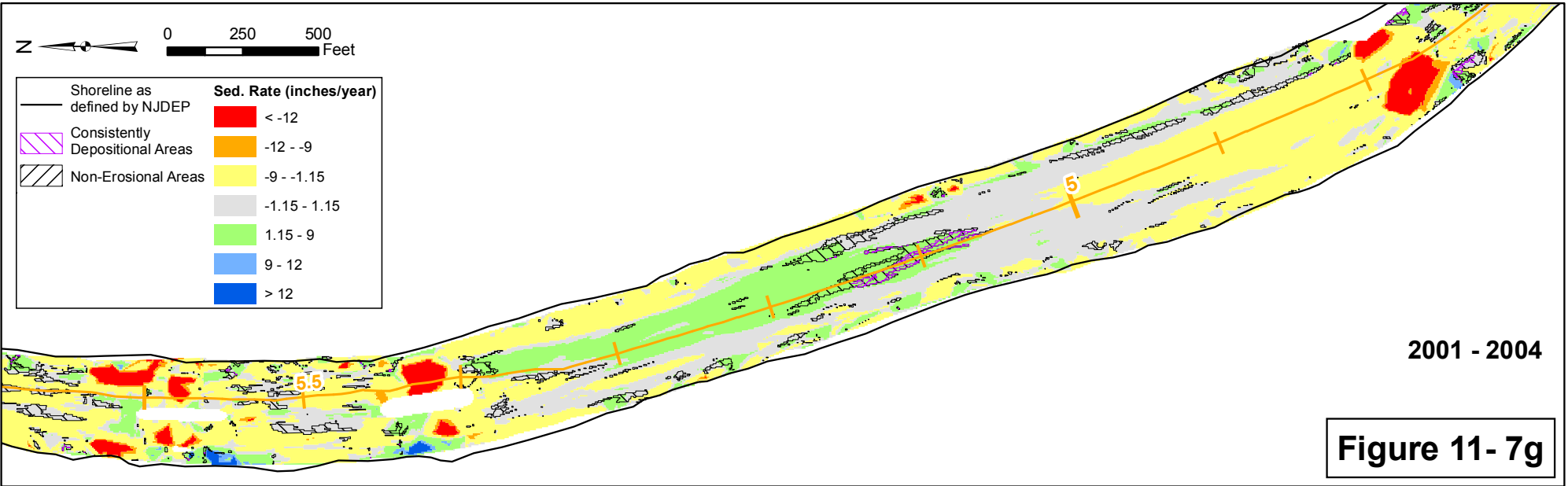
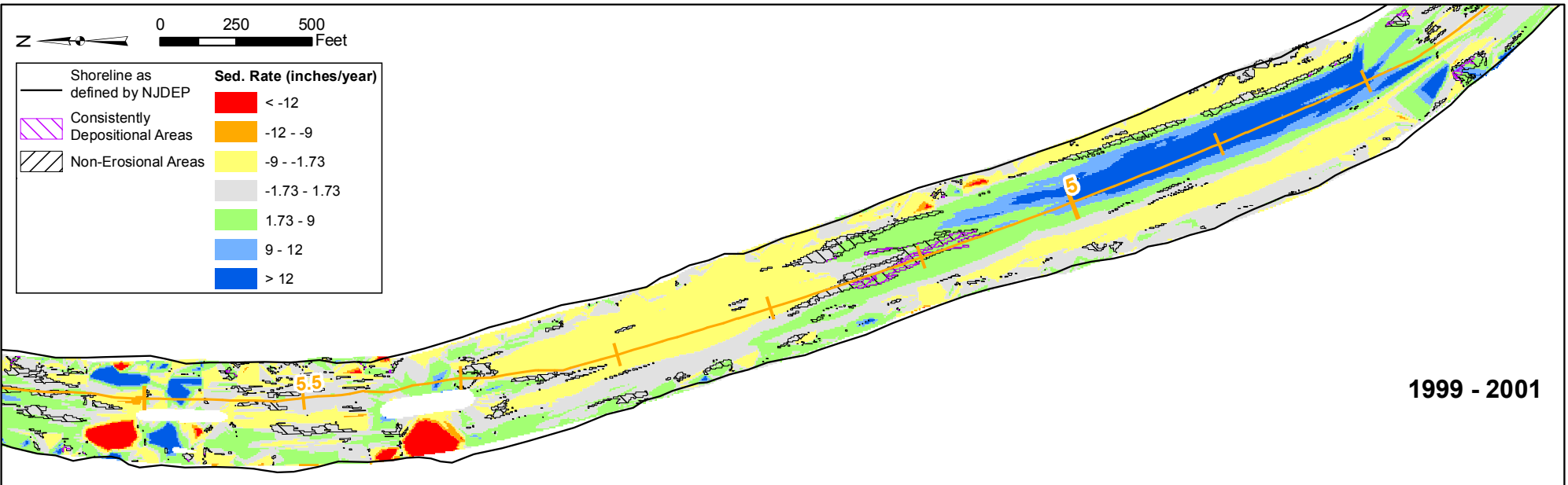
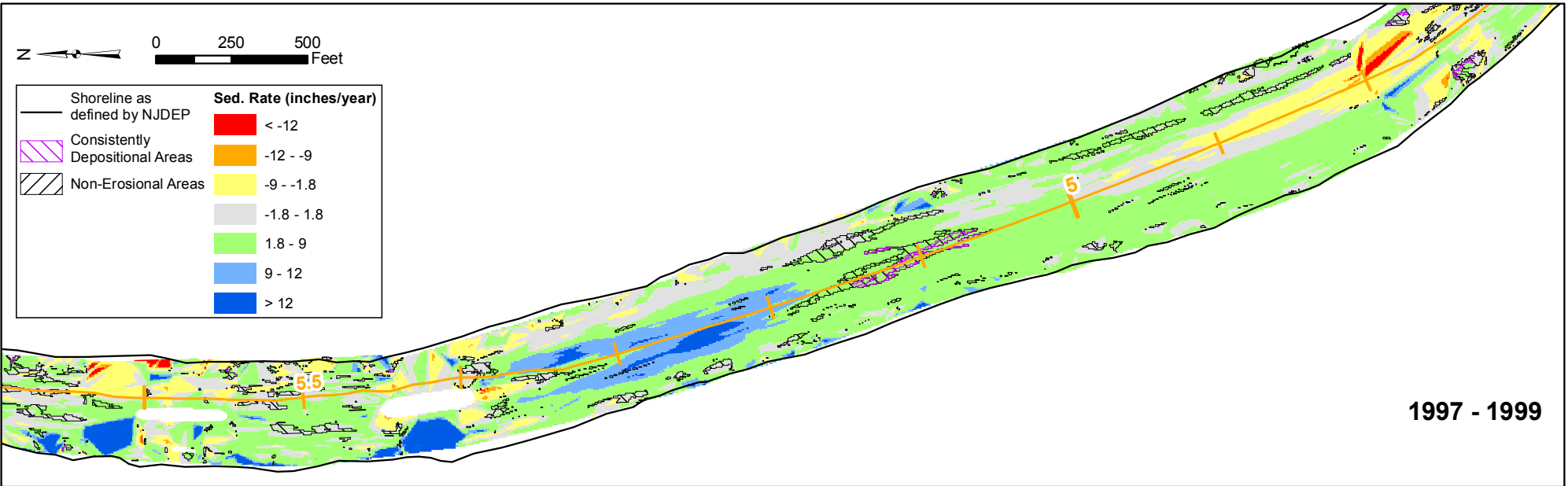
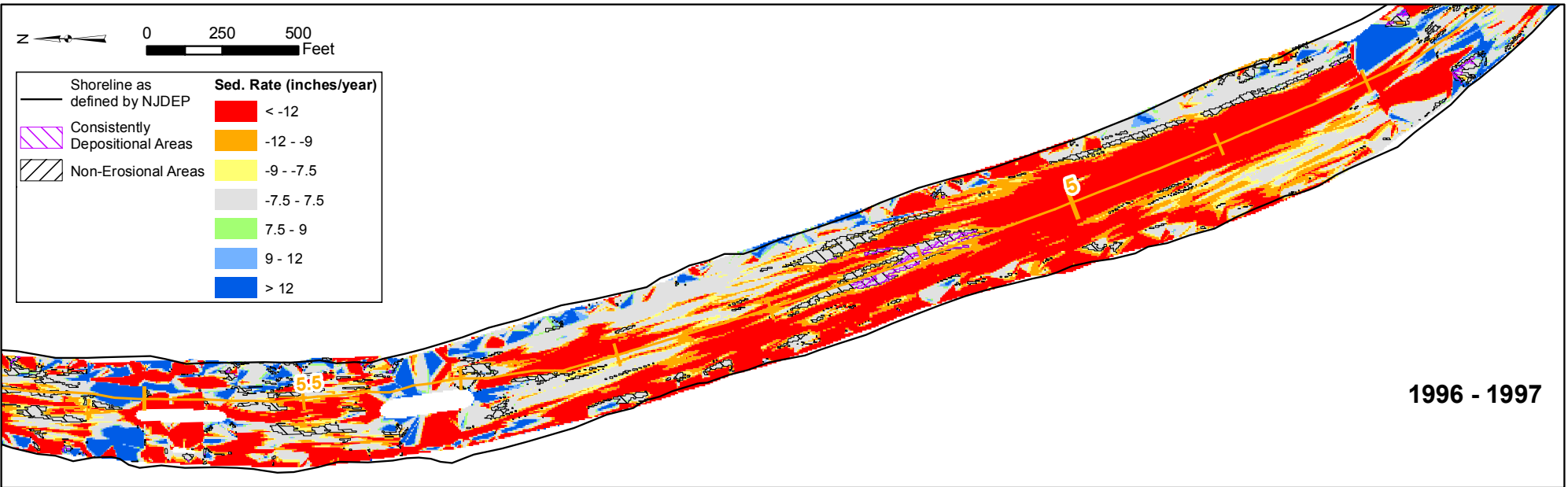
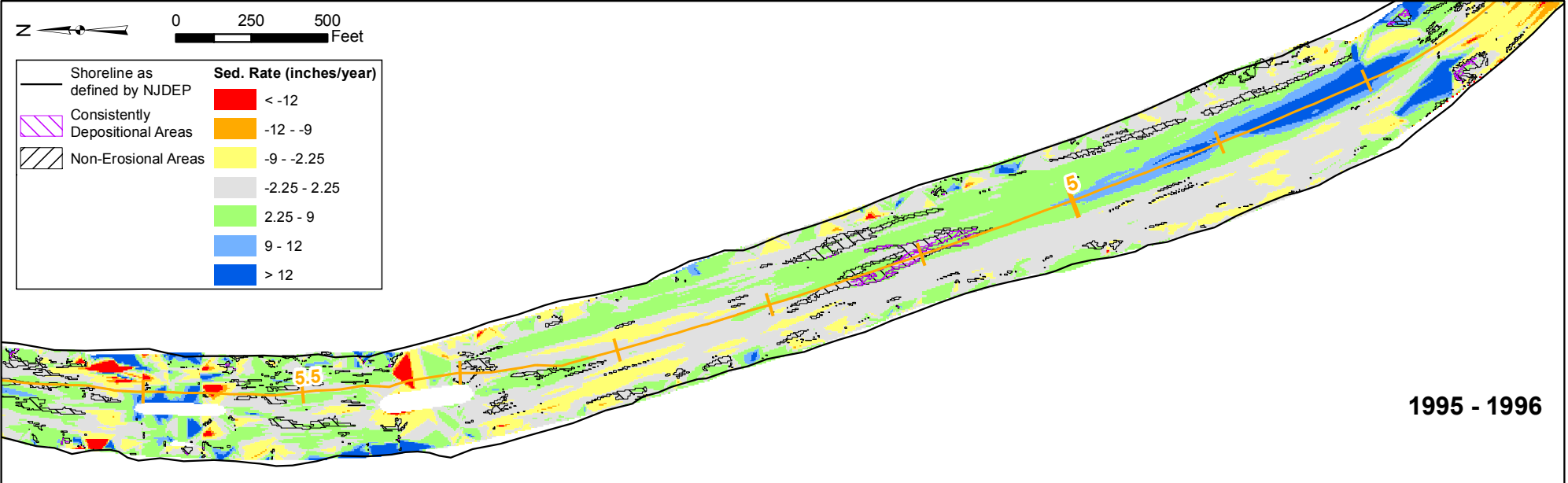


Figure 11- 7f



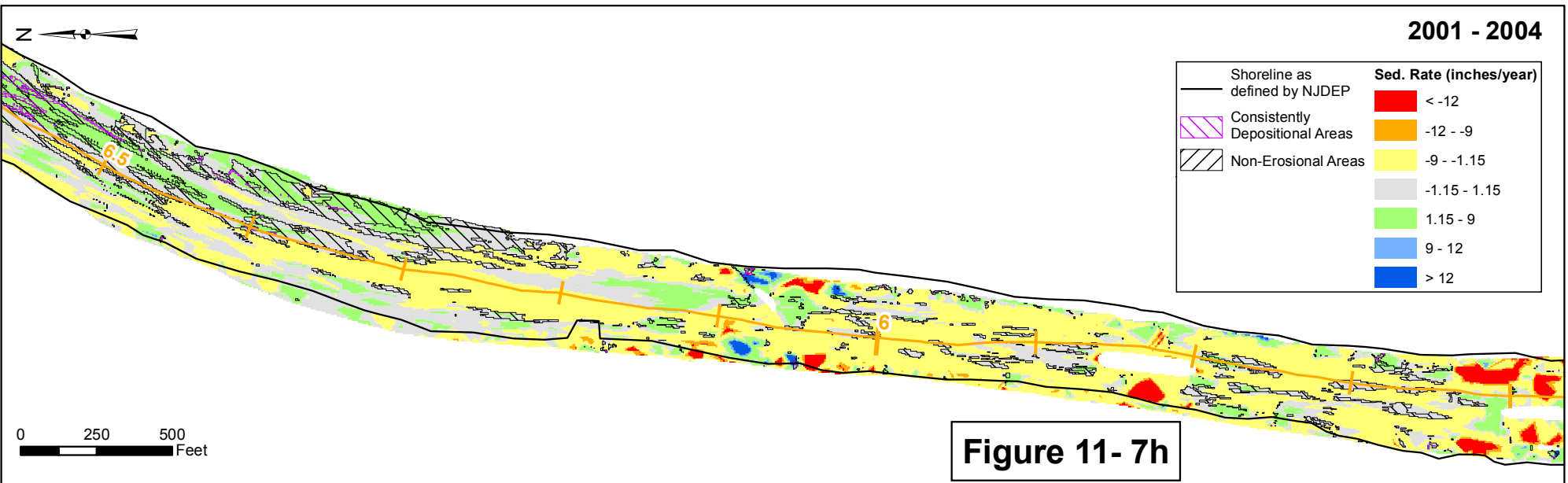
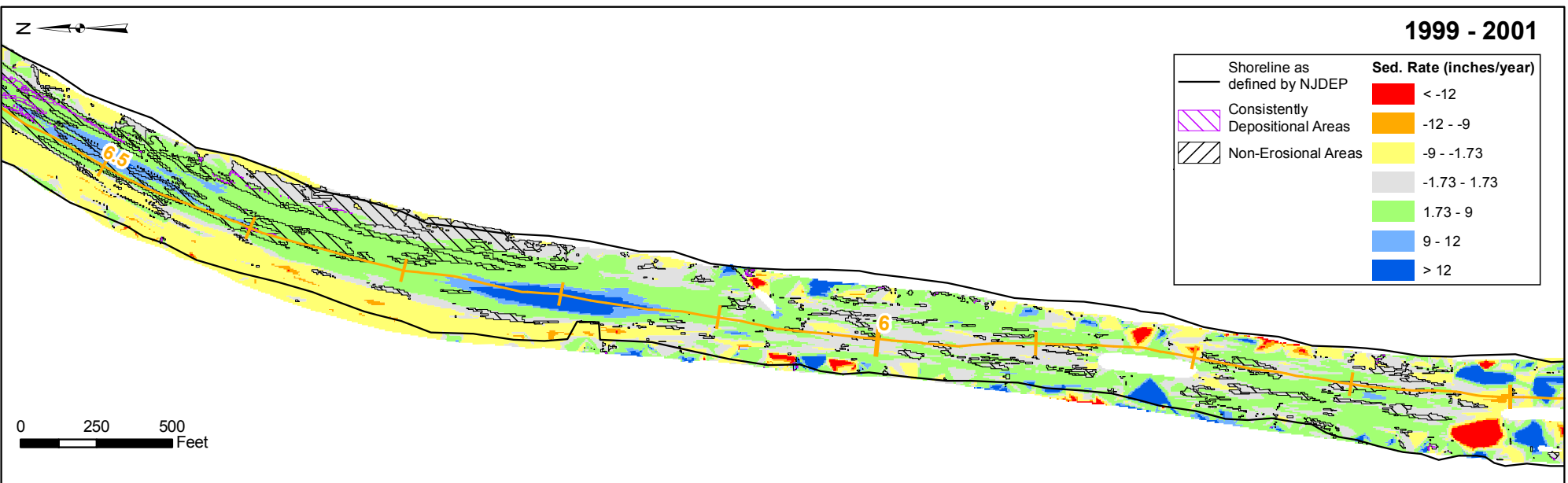
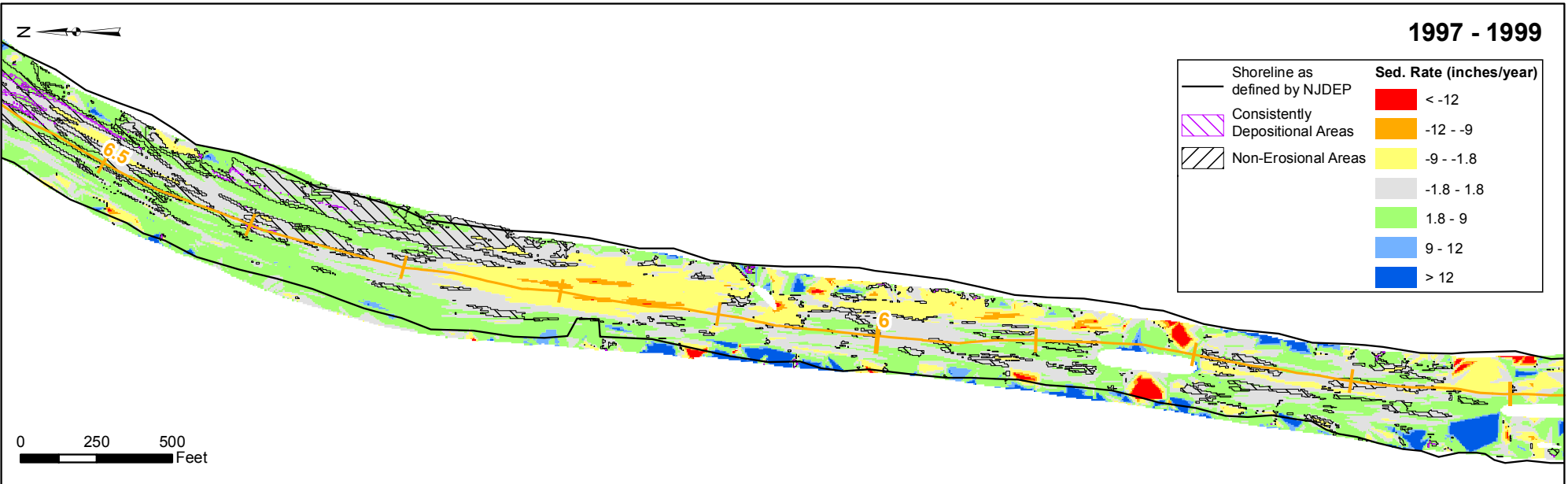
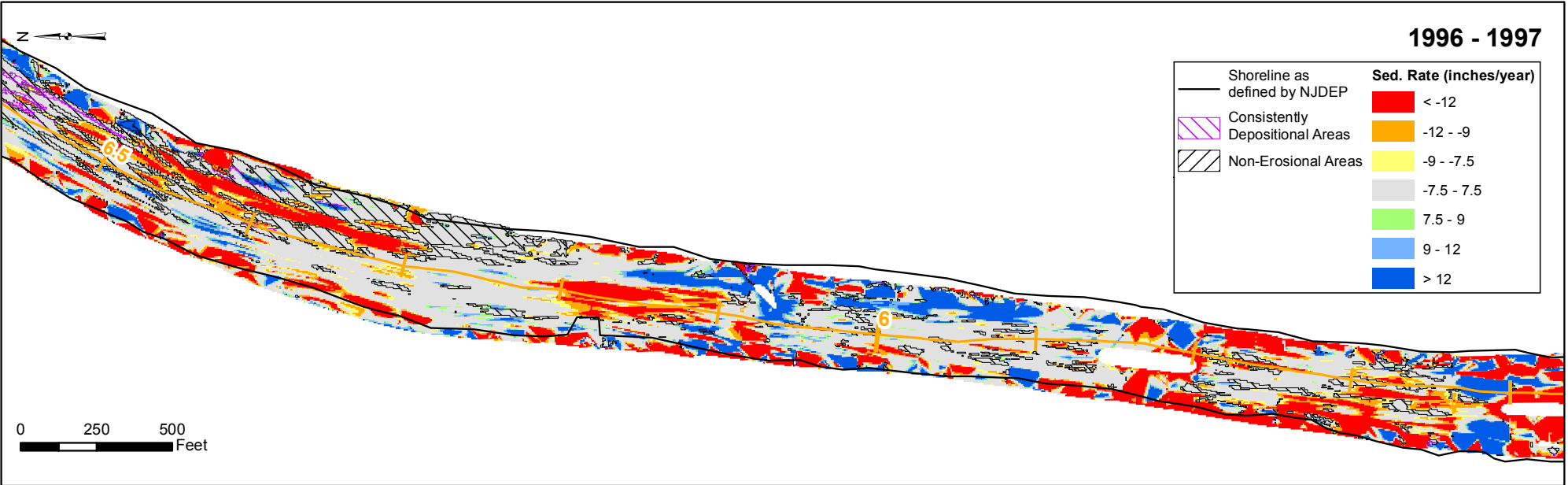
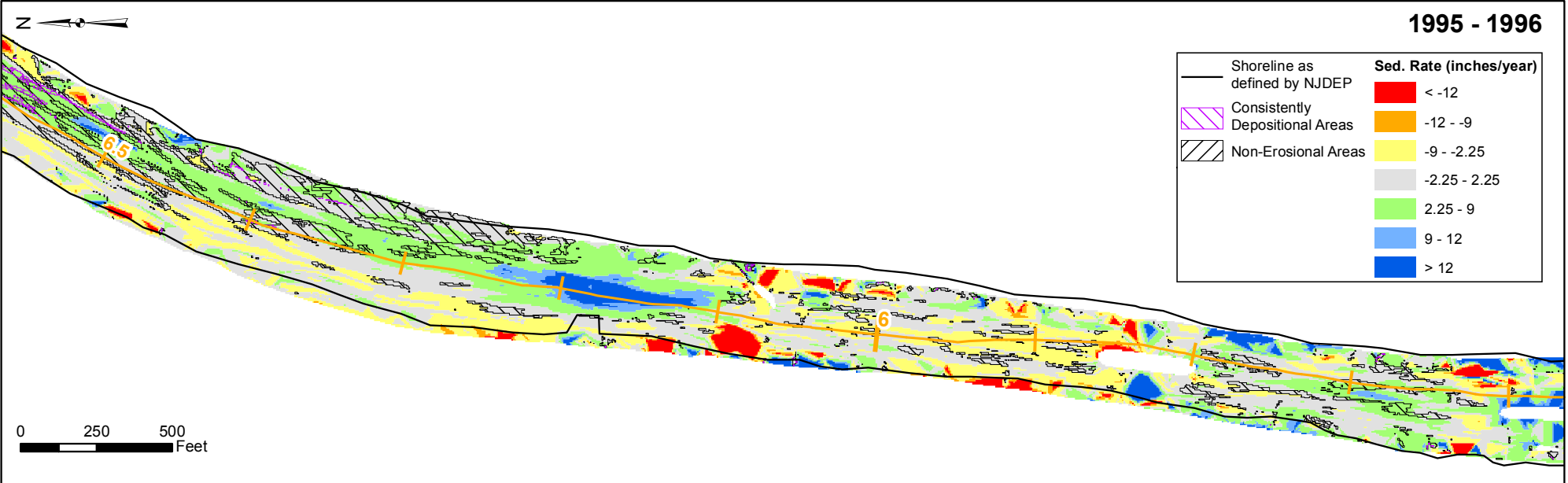


Figure 11- 7h

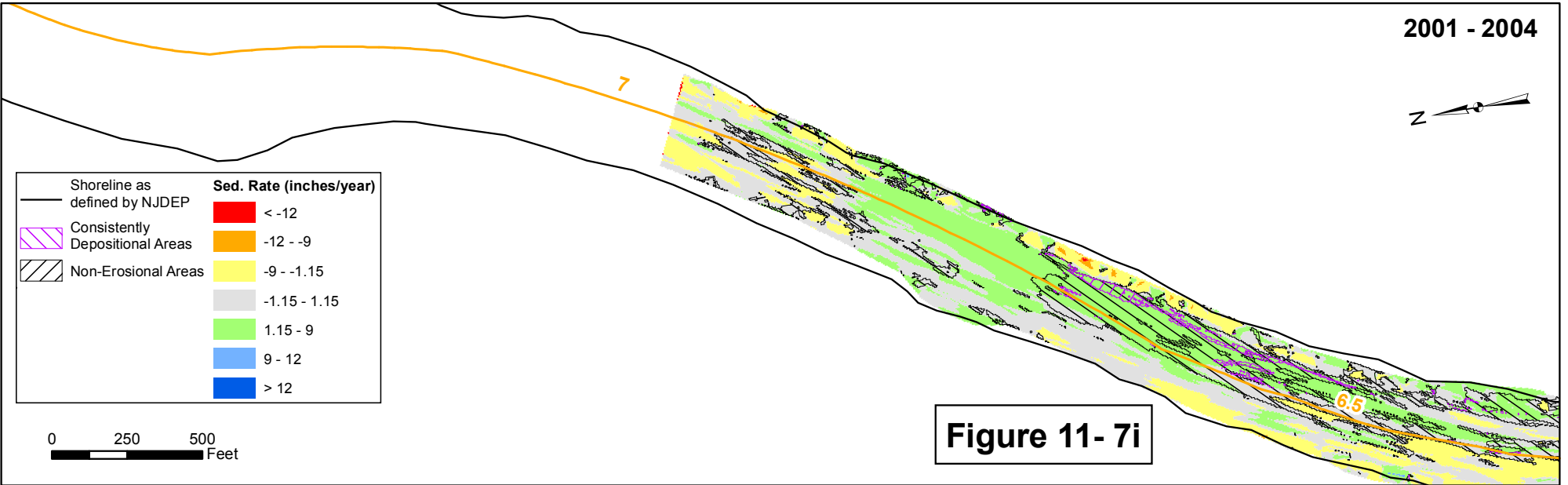
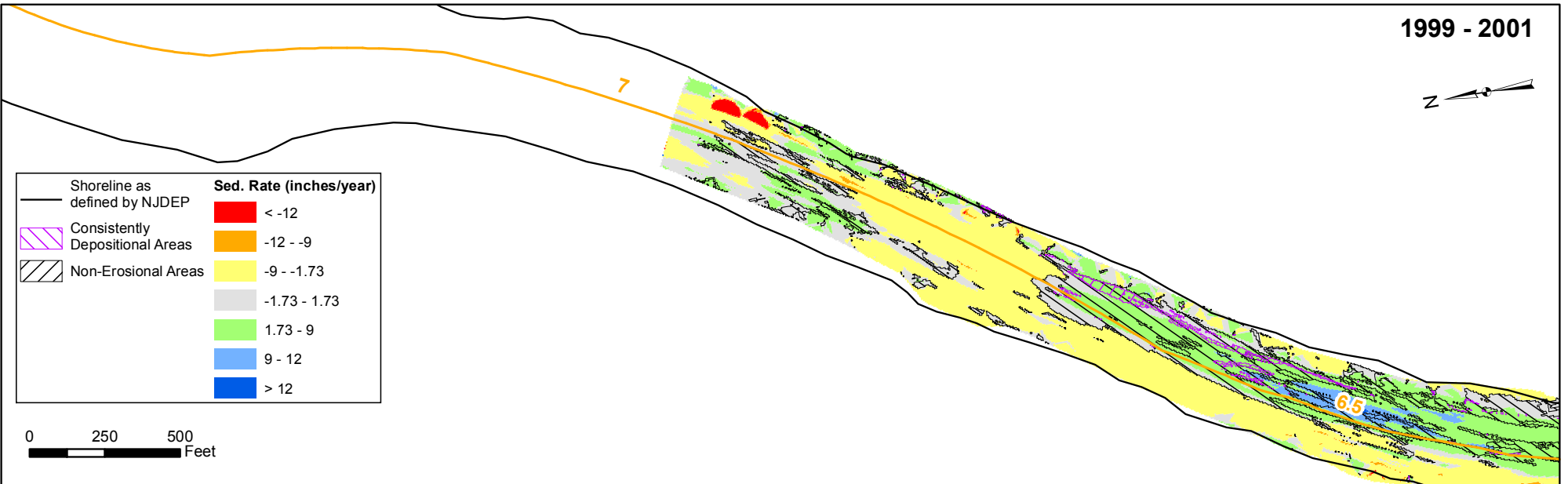
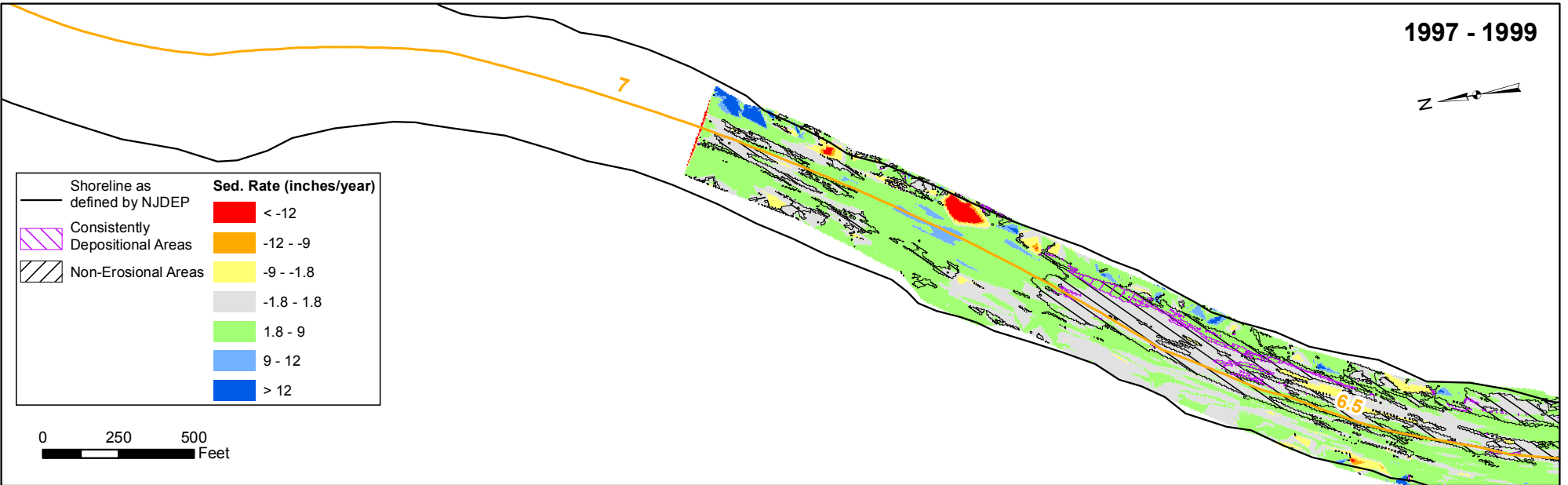
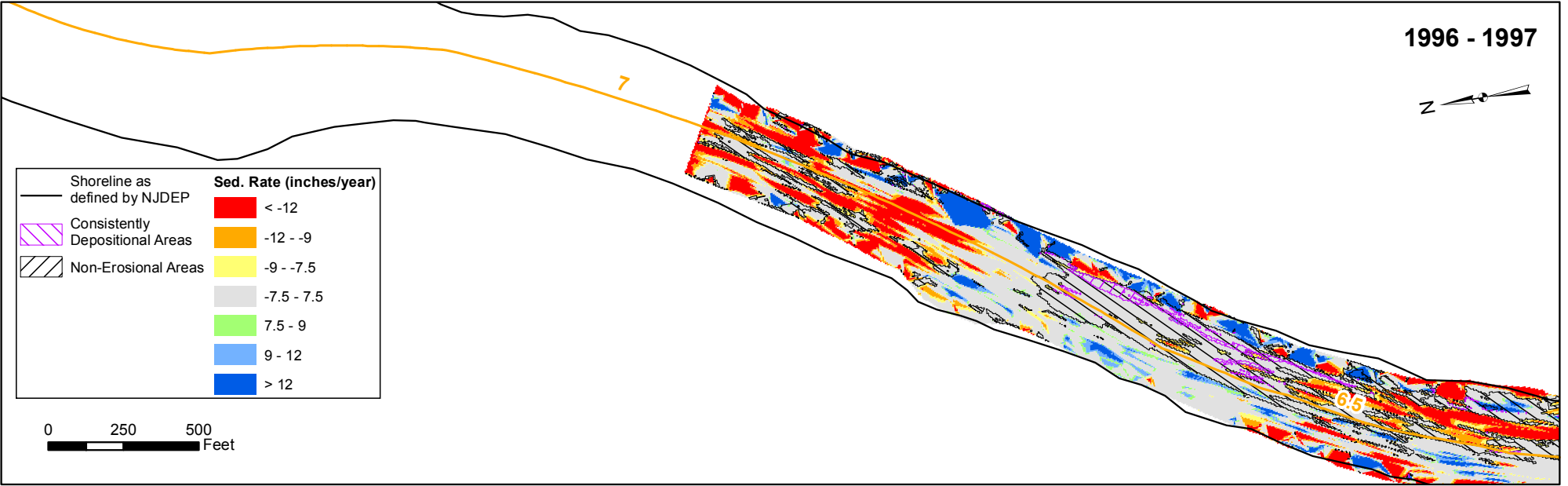
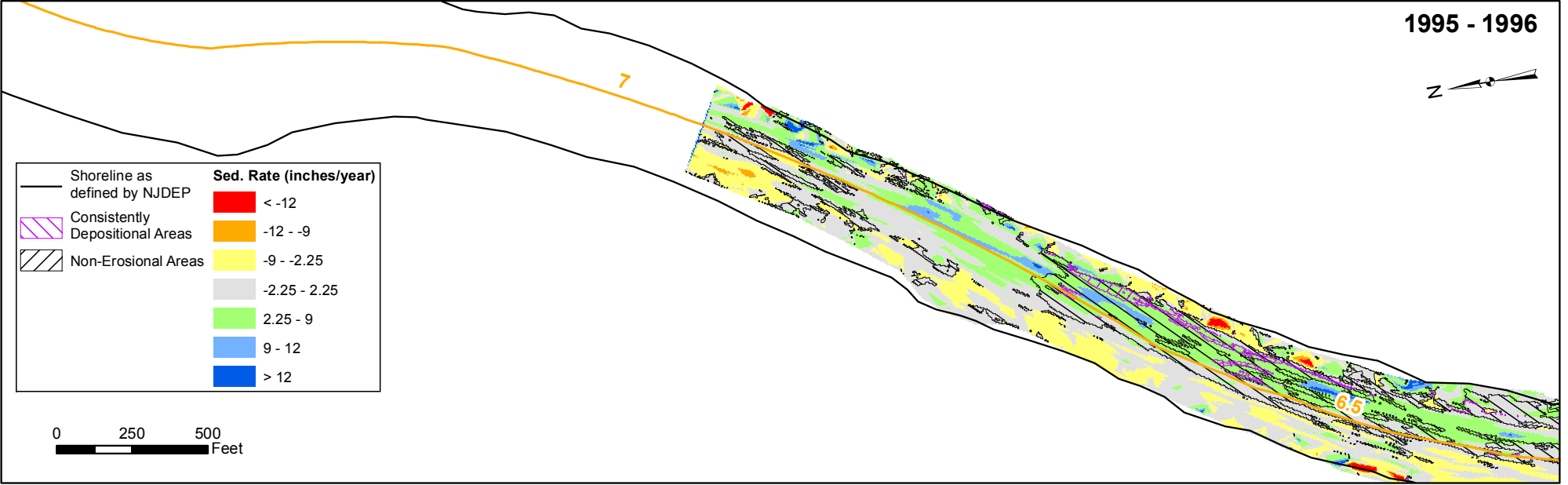


Figure 11- 7i



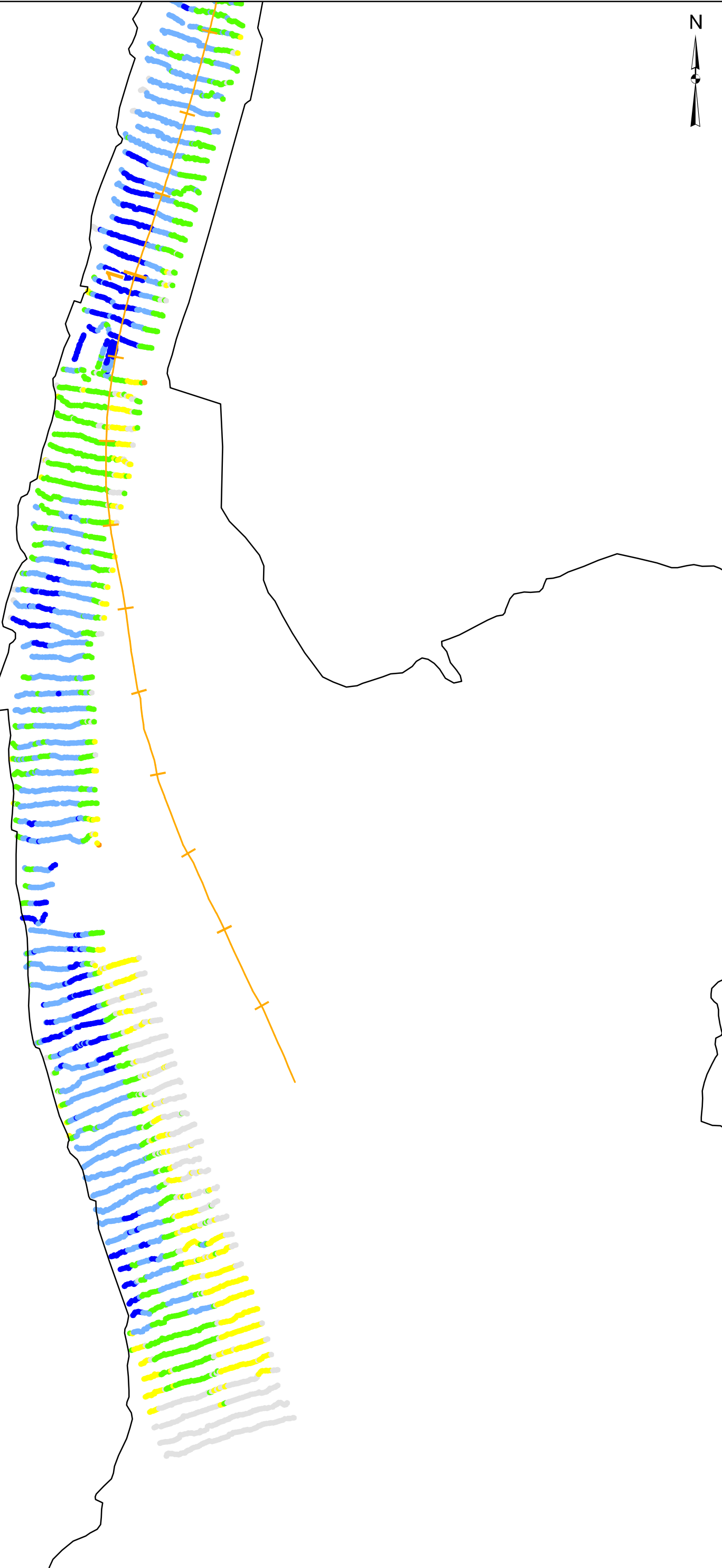
Legend

Sedimentation Rate (inches/year)

- <-6
- 6 to -3
- 3 to -.21
- .21 to .21
- .21 to 3
- 3 to 6
- >6

Shoreline

0 0.0625 0.125 0.25 Miles

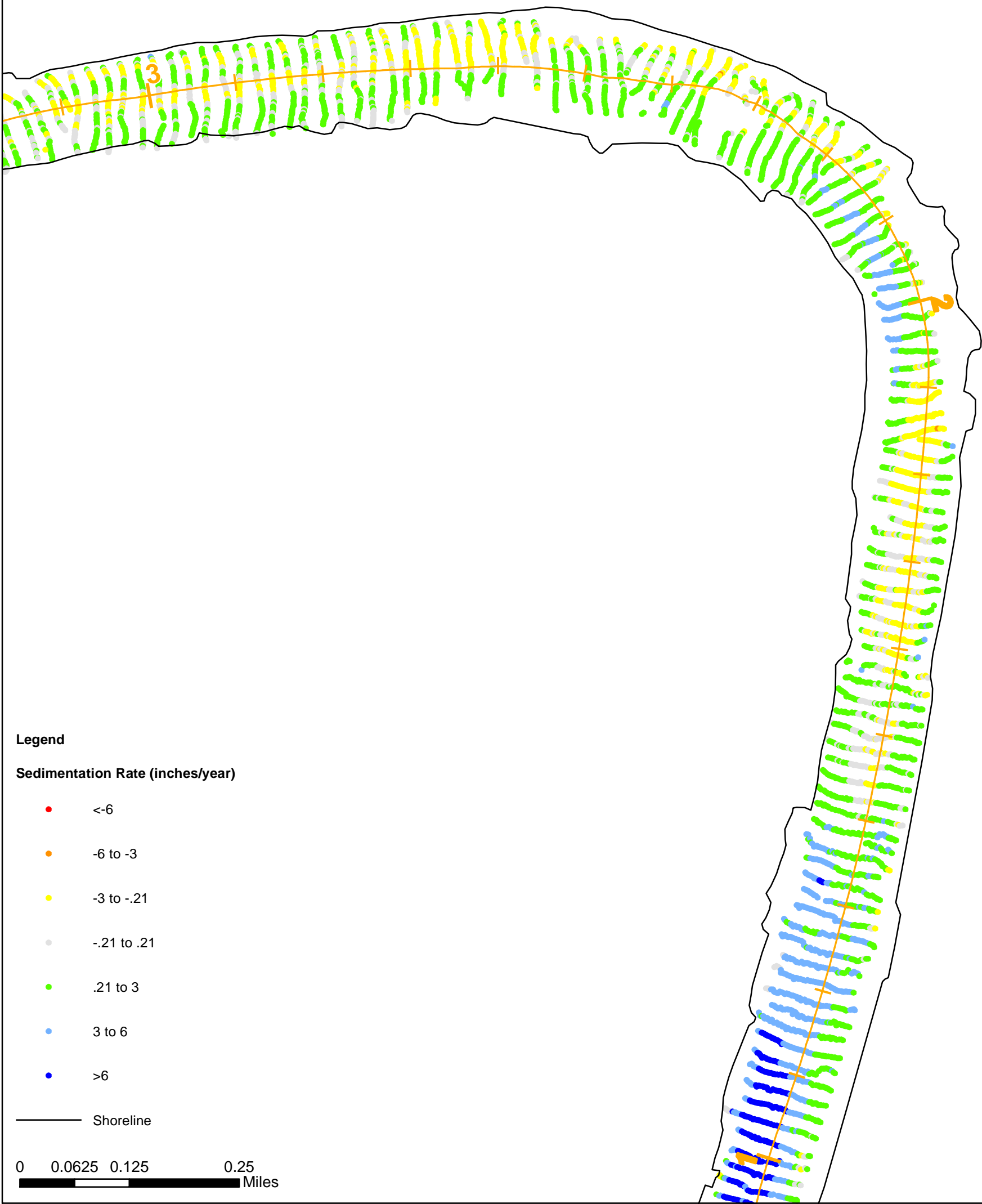


Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8a

September 2008



Sedimentation Rate 1989-2007

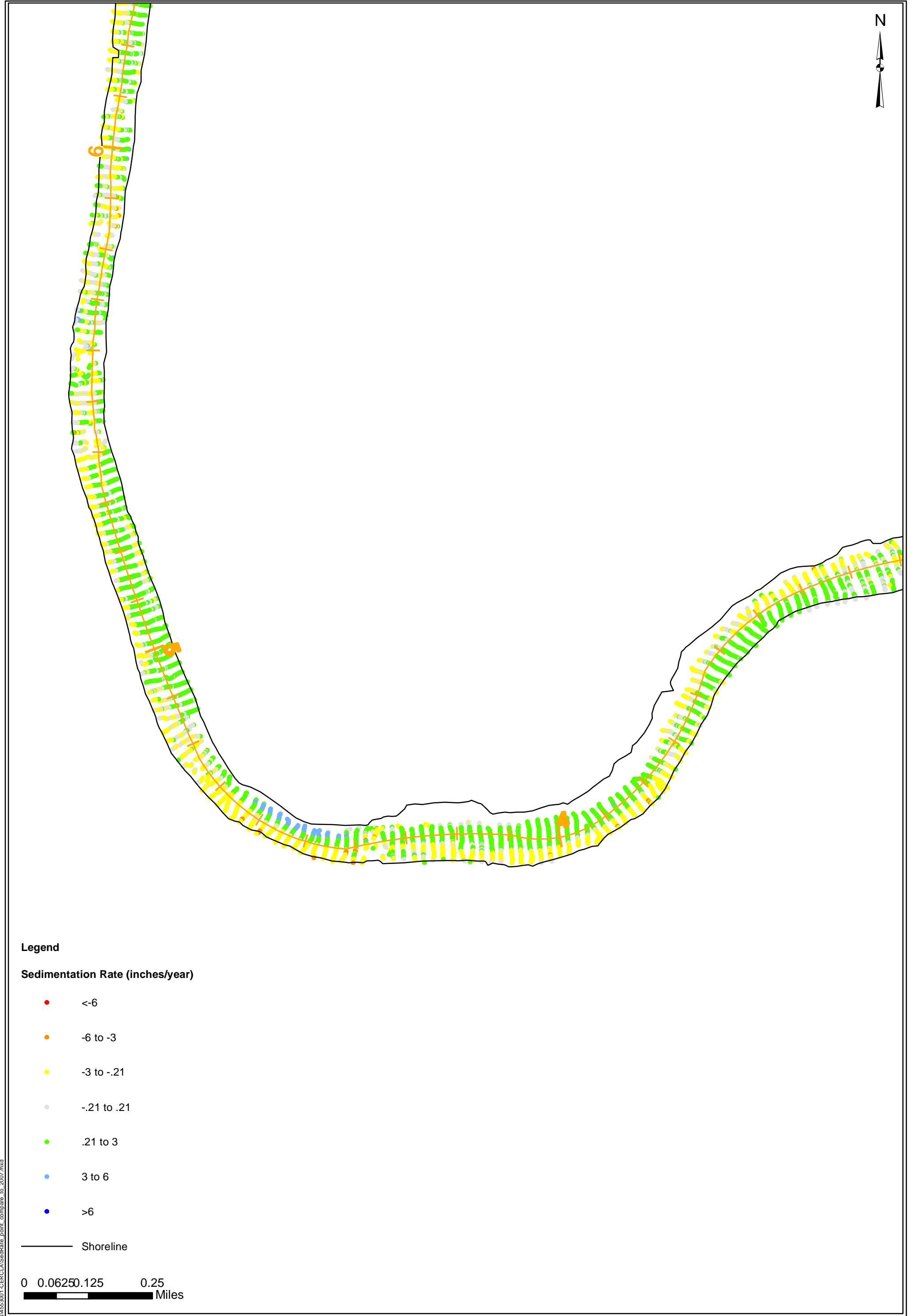
Lower Passaic River Restoration Project

Figure 11 - 8b

September 2008

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd





S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd

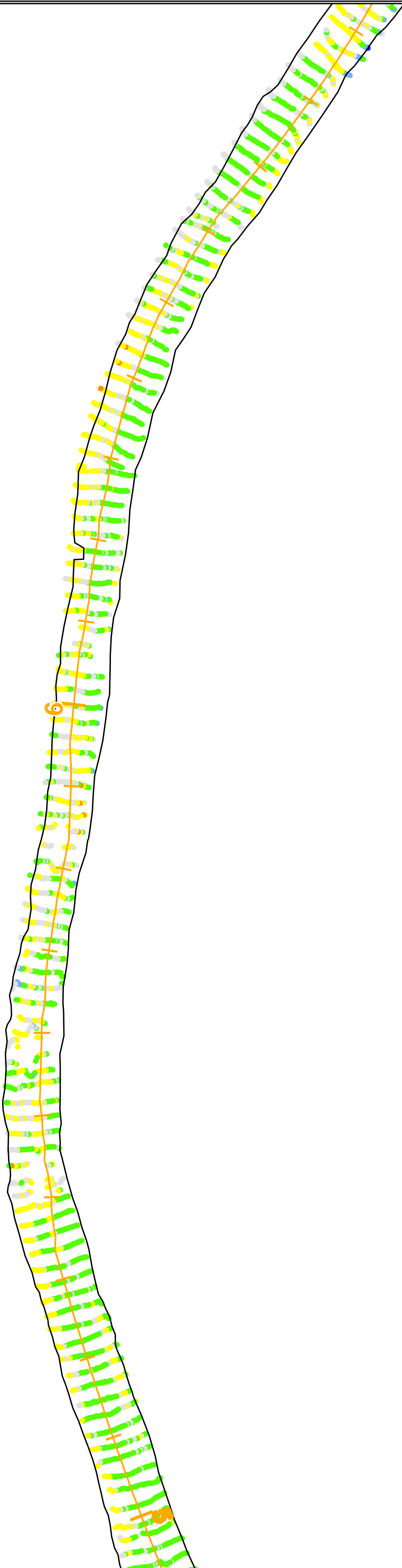


Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8c

September 2008



Legend

Sedimentation Rate (inches/year)

- <-6
- -6 to -3
- -3 to -.21
- -.21 to .21
- .21 to 3
- 3 to 6
- >6

— Shoreline

0 0.0625 0.125 0.25 Miles

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd



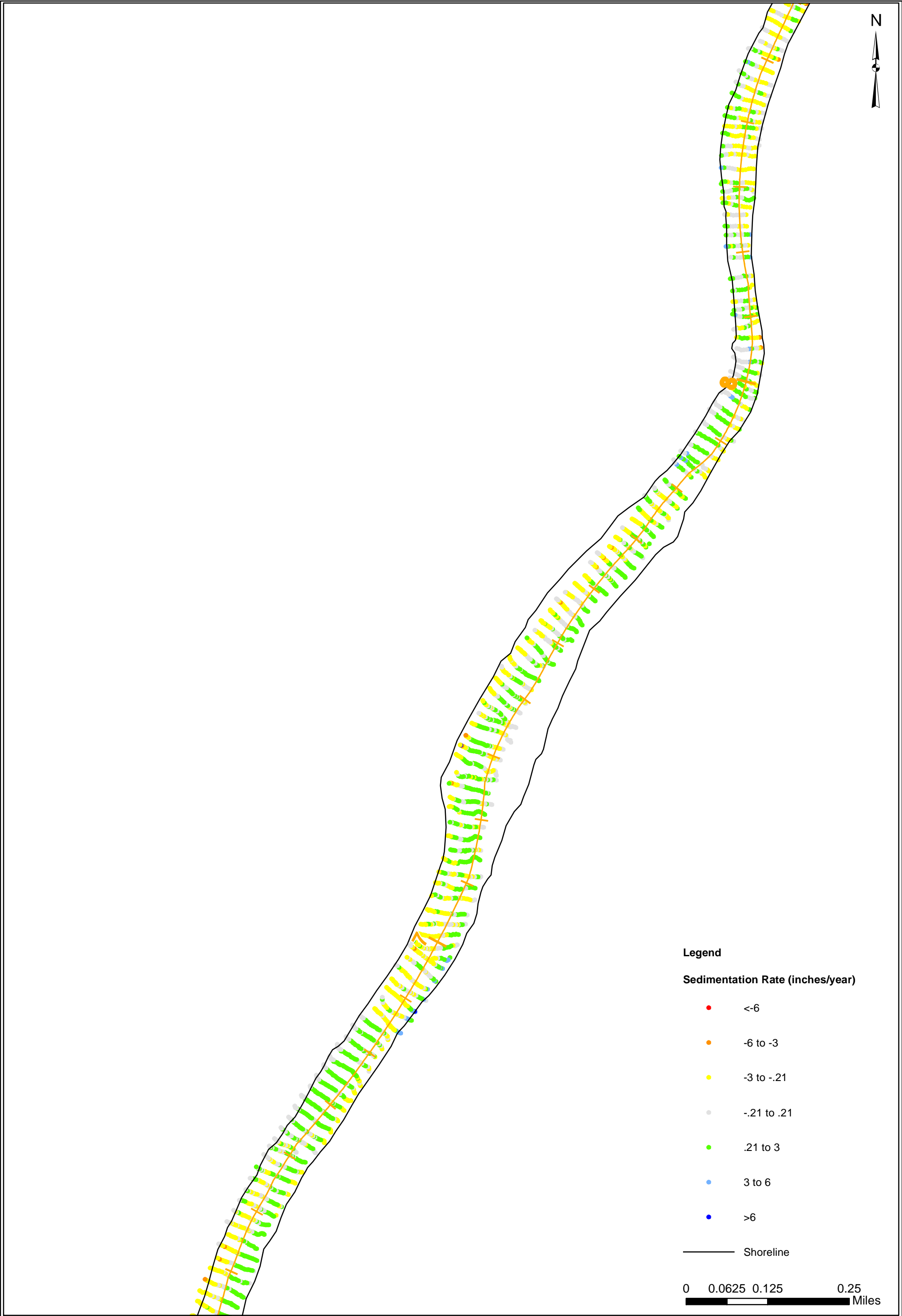
Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8d

September 2008

S:\Projects\PASSAIC\MapDocuments\4563001-CERCLA\SedRate_point_compare_to_2007.mxd

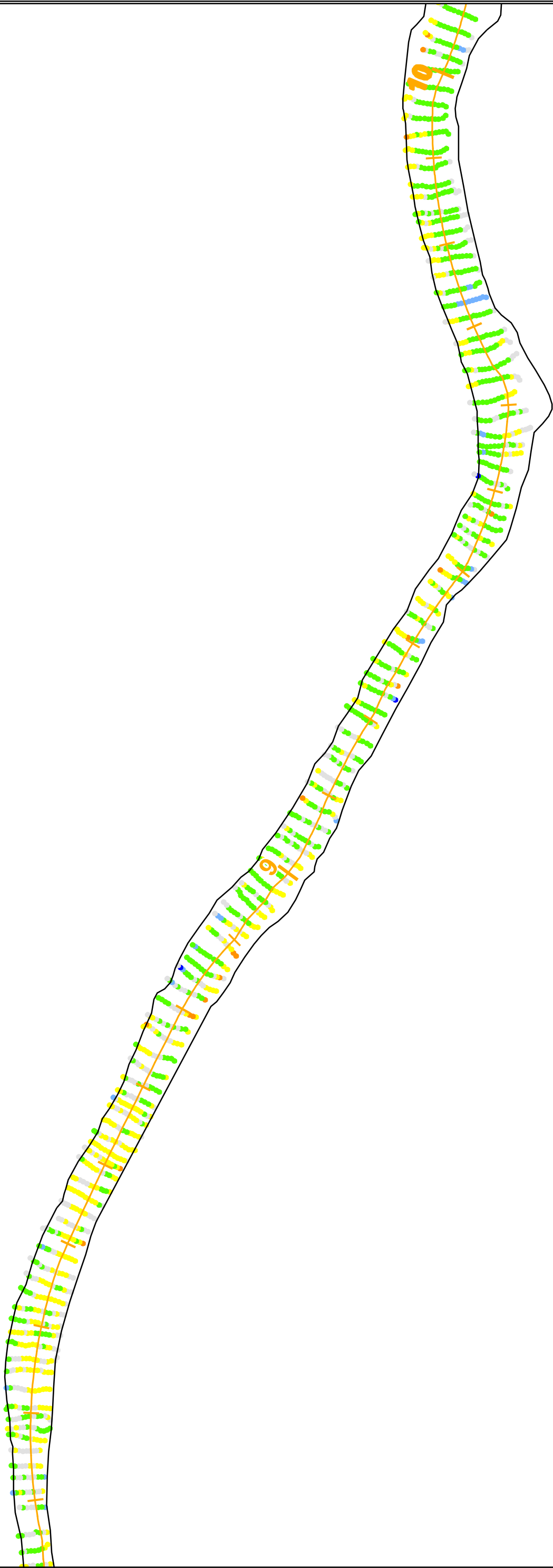


Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8e

September 2008



Legend

Sedimentation Rate (inches/year)

●	<-6
●	-6 to -3
●	-3 to -.21
●	-.21 to .21
●	.21 to 3
●	3 to 6
●	>6
—	Shoreline

0 0.0625 0.125 0.25 Miles

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd

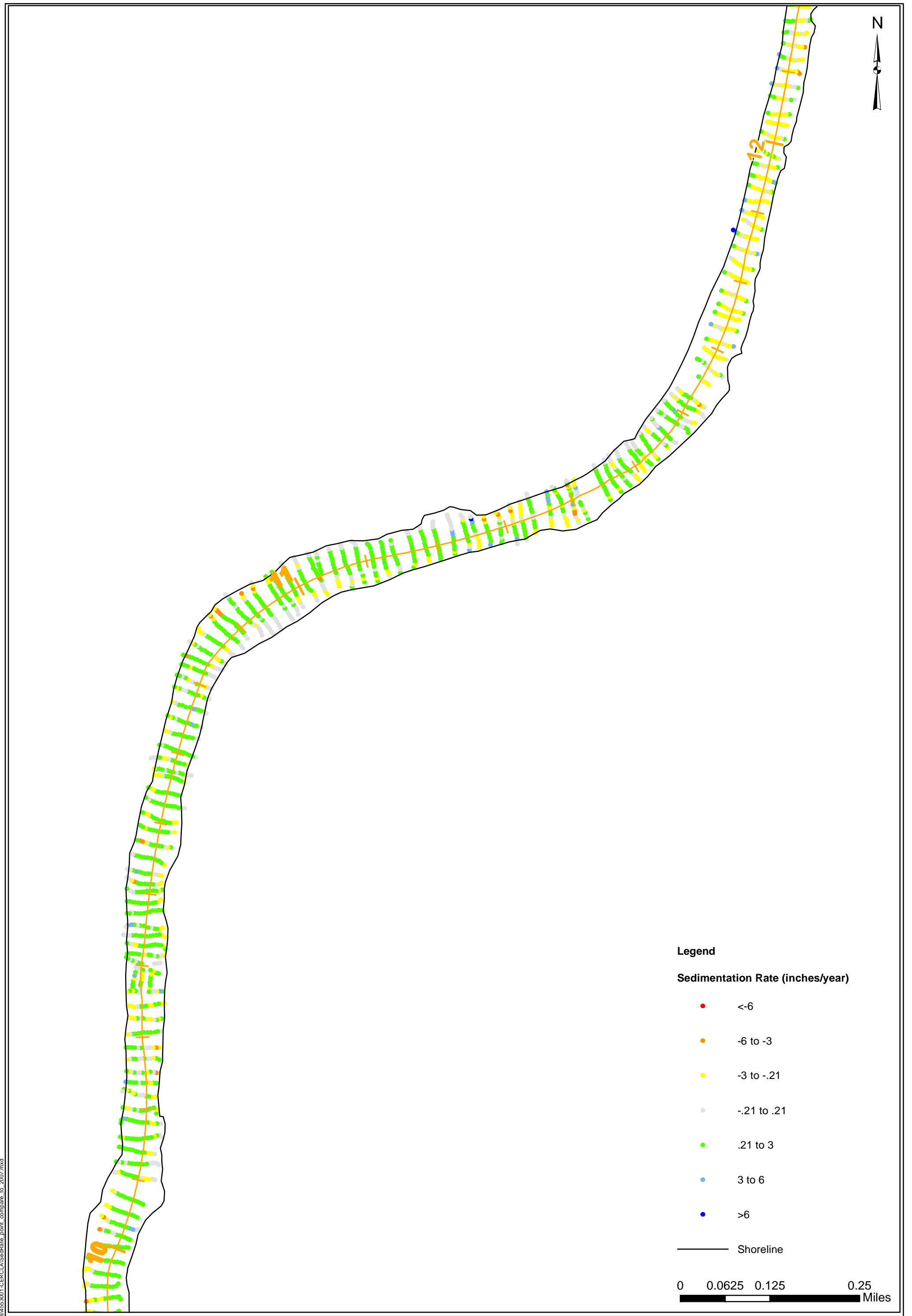


Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8f

September 2008



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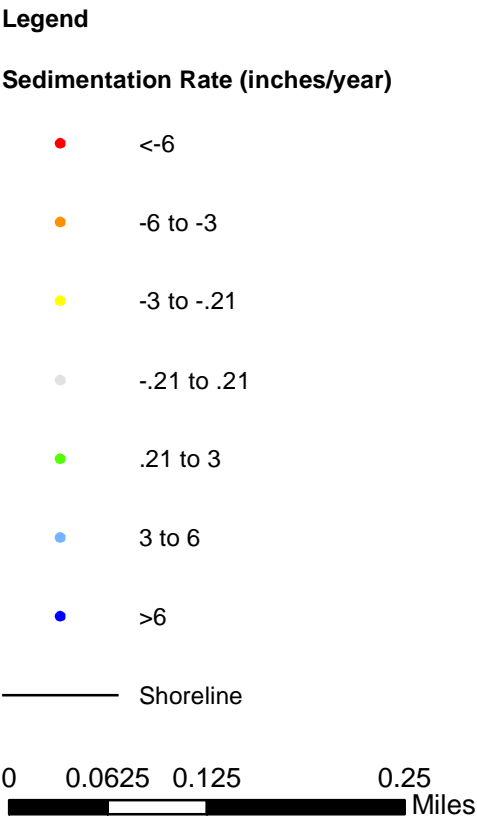


Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8g

September 2008



S:\Projects\PASSAIC\MapDocuments\4553001-CERCLA\SedRate_point_compare_to_2007.mxd



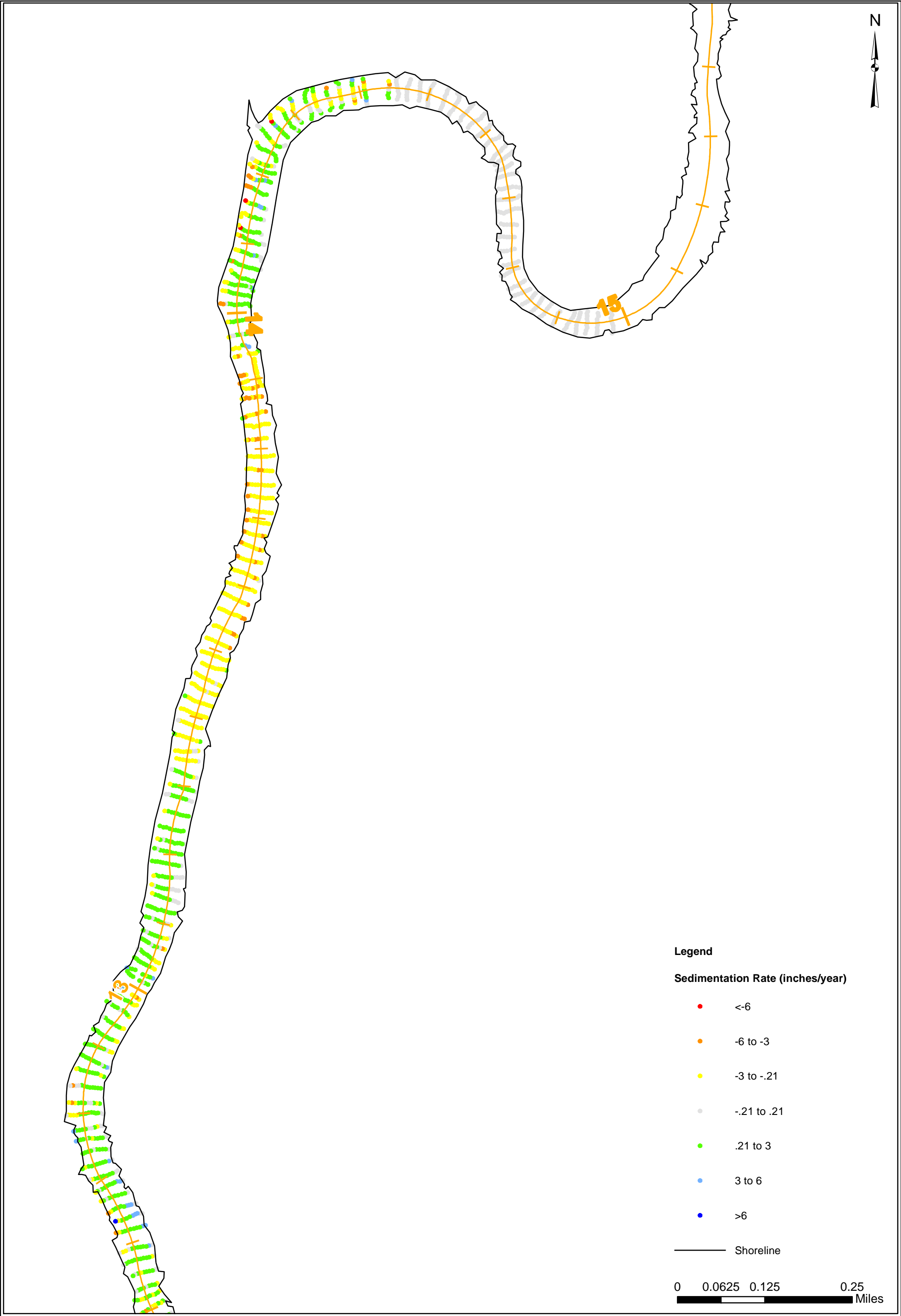
Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8h

September 2008

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd



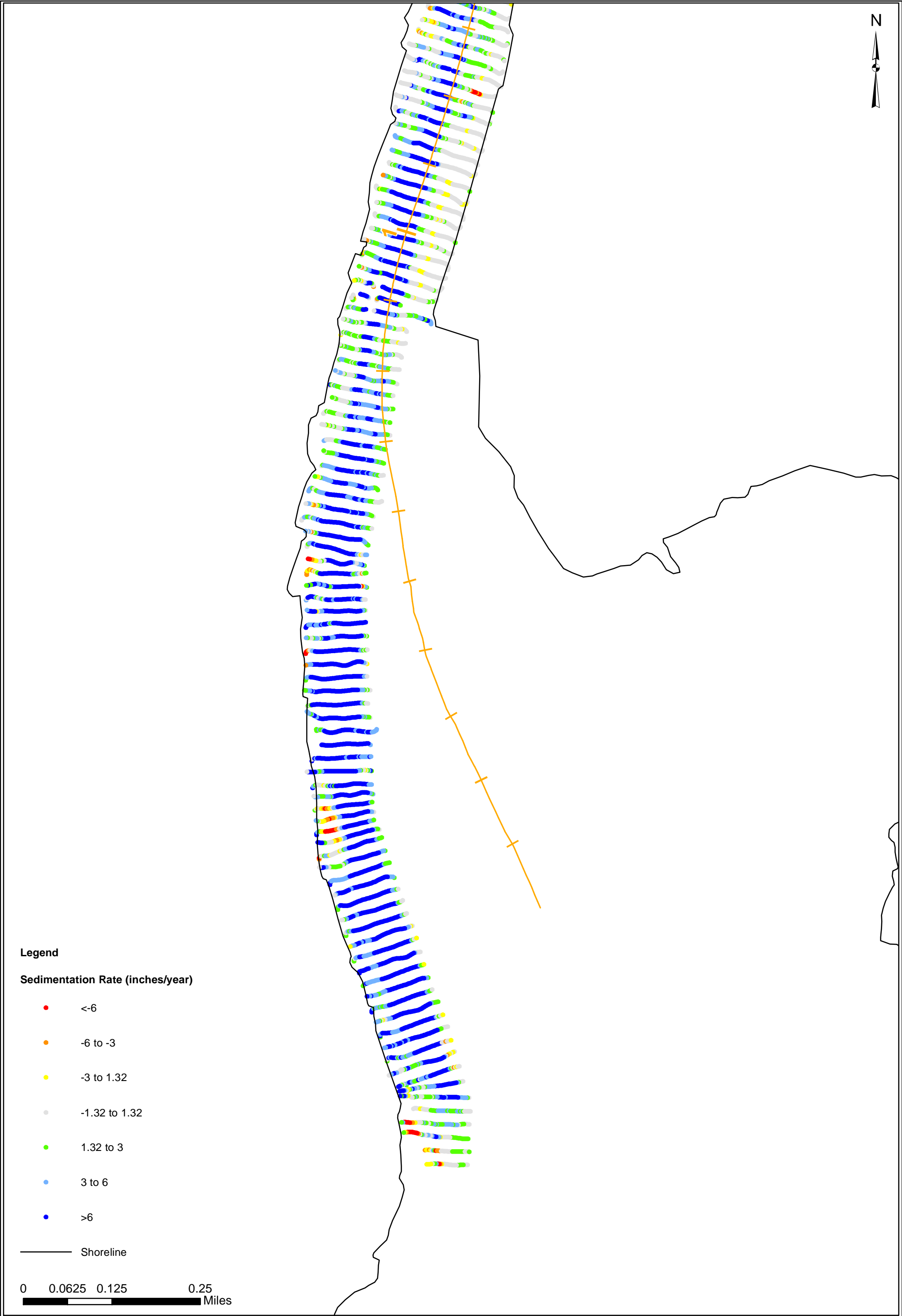
Sedimentation Rate 1989-2007

Lower Passaic River Restoration Project

Figure 11 - 8i

September 2008

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd

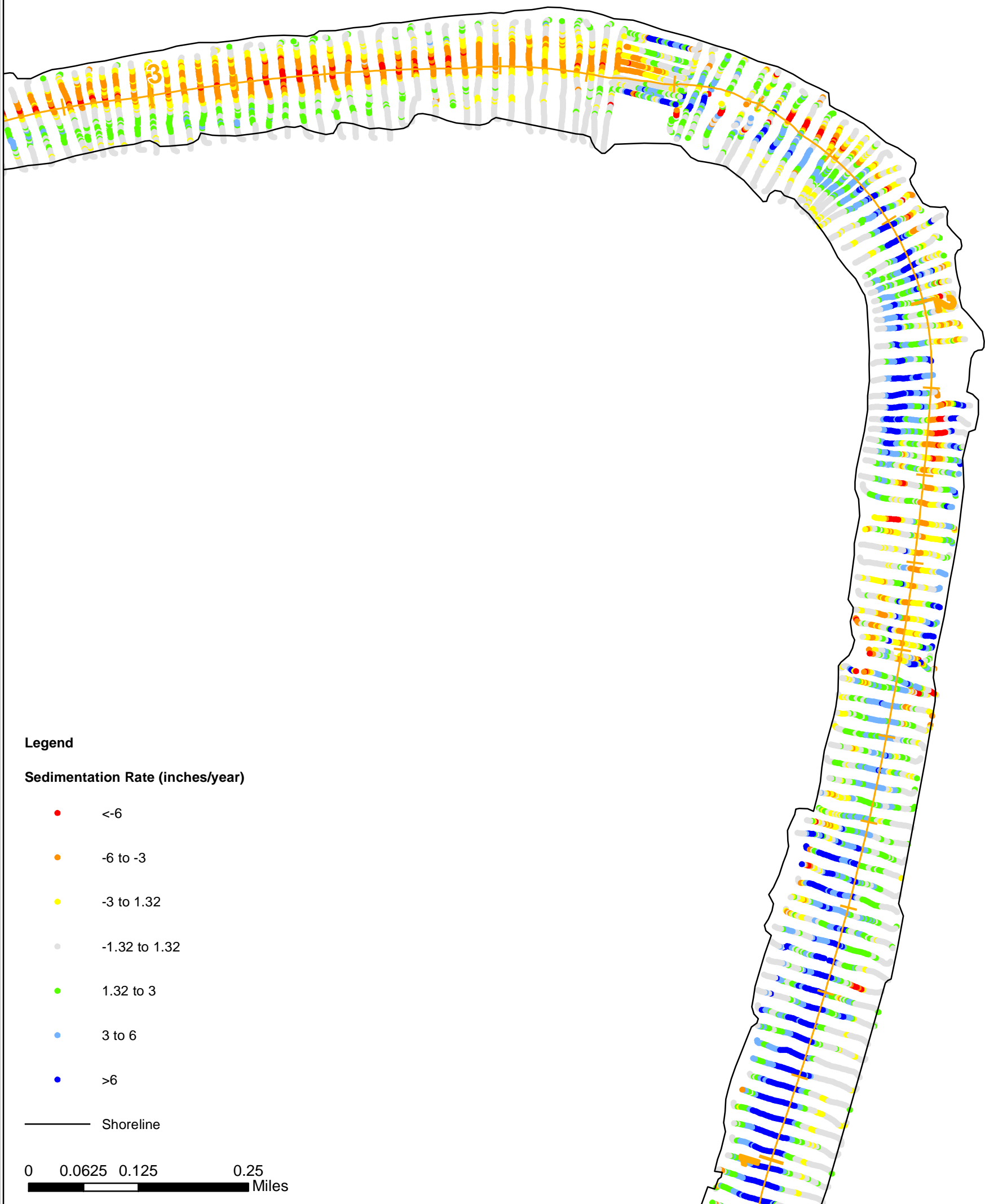


Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9a

September 2008



Legend

Sedimentation Rate (inches/year)

- <-6
- -6 to -3
- -3 to 1.32
- -1.32 to 1.32
- 1.32 to 3
- 3 to 6
- >6

— Shoreline

0 0.0625 0.125 0.25 Miles

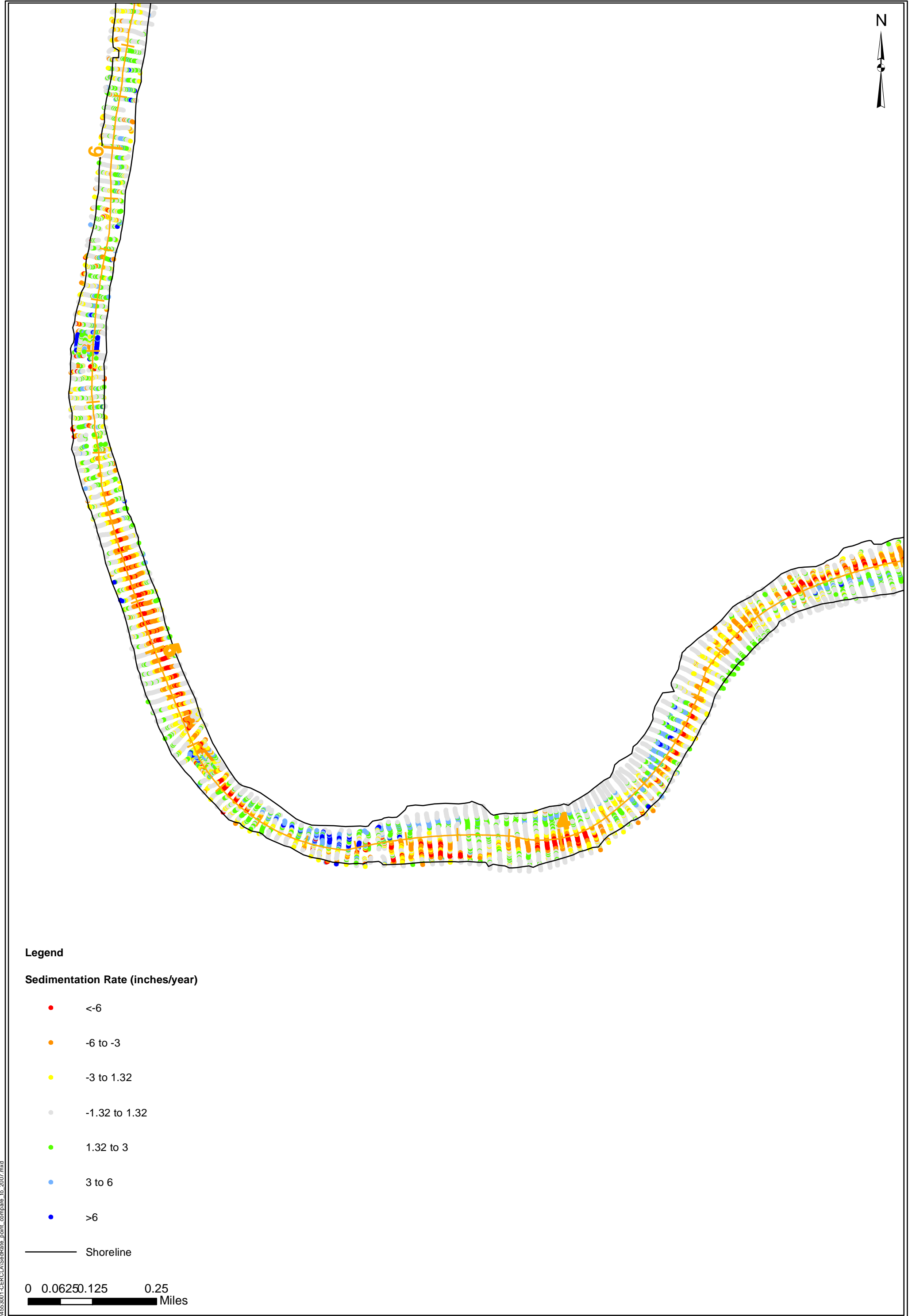


Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9b

September 2008



S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd



Legend

Sedimentation Rate (inches/year)

- <-6
- -6 to -3
- -3 to 1.32
- -1.32 to 1.32
- 1.32 to 3
- 3 to 6
- >6
- Shoreline

0 0.0625 0.125 0.25 Miles



Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9d

September 2008

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Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9e

September 2008



Legend

Sedimentation Rate (inches/year)

- <-6
- -6 to -3
- -3 to 1.32
- -1.32 to 1.32
- 1.32 to 3
- 3 to 6
- >6
- Shoreline

0 0.0625 0.125 0.25 Miles

S:\Projects\PASSAIC\MapDocuments\4563001-CERCLA\SedRate_point_compare_to_2007.mxd



Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9f

September 2008



Legend

Sedimentation Rate (inches/year)

- <-6
- -6 to -3
- -3 to 1.32
- -1.32 to 1.32
- 1.32 to 3
- 3 to 6
- >6

— Shoreline

0 0.0625 0.125 0.25 Miles



Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9g

September 2008



Legend

Sedimentation Rate (inches/year)

- <-6
- -6 to -3
- -3 to 1.32
- -1.32 to 1.32
- 1.32 to 3
- 3 to 6
- >6

— Shoreline

0 0.0625 0.125 0.25 Miles

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd



Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9h

September 2008

S:\Projects\PASSAIC\MapDocuments\M553001-CERCLA\SedRate_point_compare_to_2007.mxd

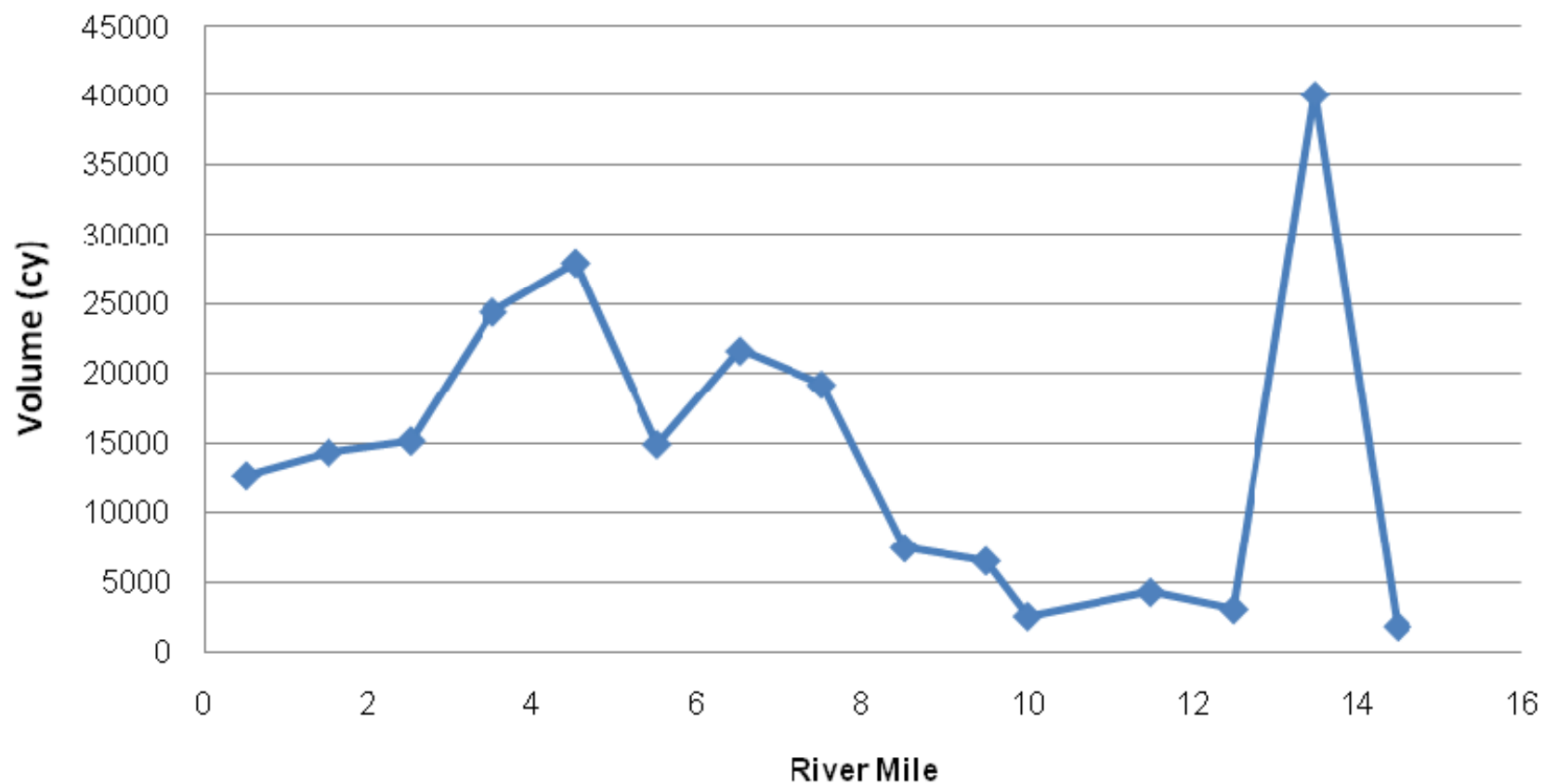


Sedimentation Rate 2004-2007

Lower Passaic River Restoration Project

Figure 11 - 9i

September 2008

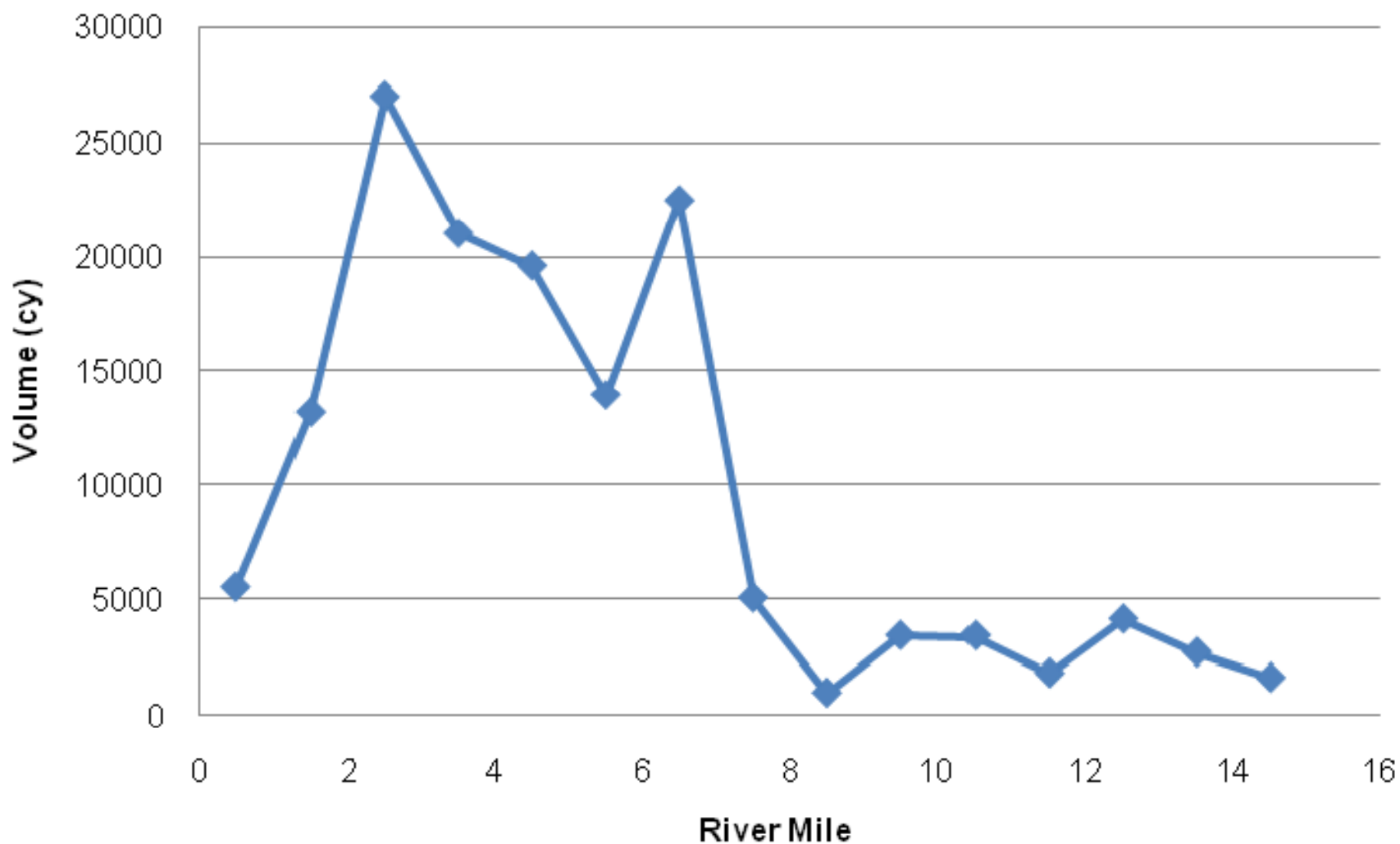


**Fine Grained Sediment Volume Resuspended by River Mile
Scenerio 1, 1989-2007**

Lower Passaic River Restoration Project

Figure 11-10

September 2008

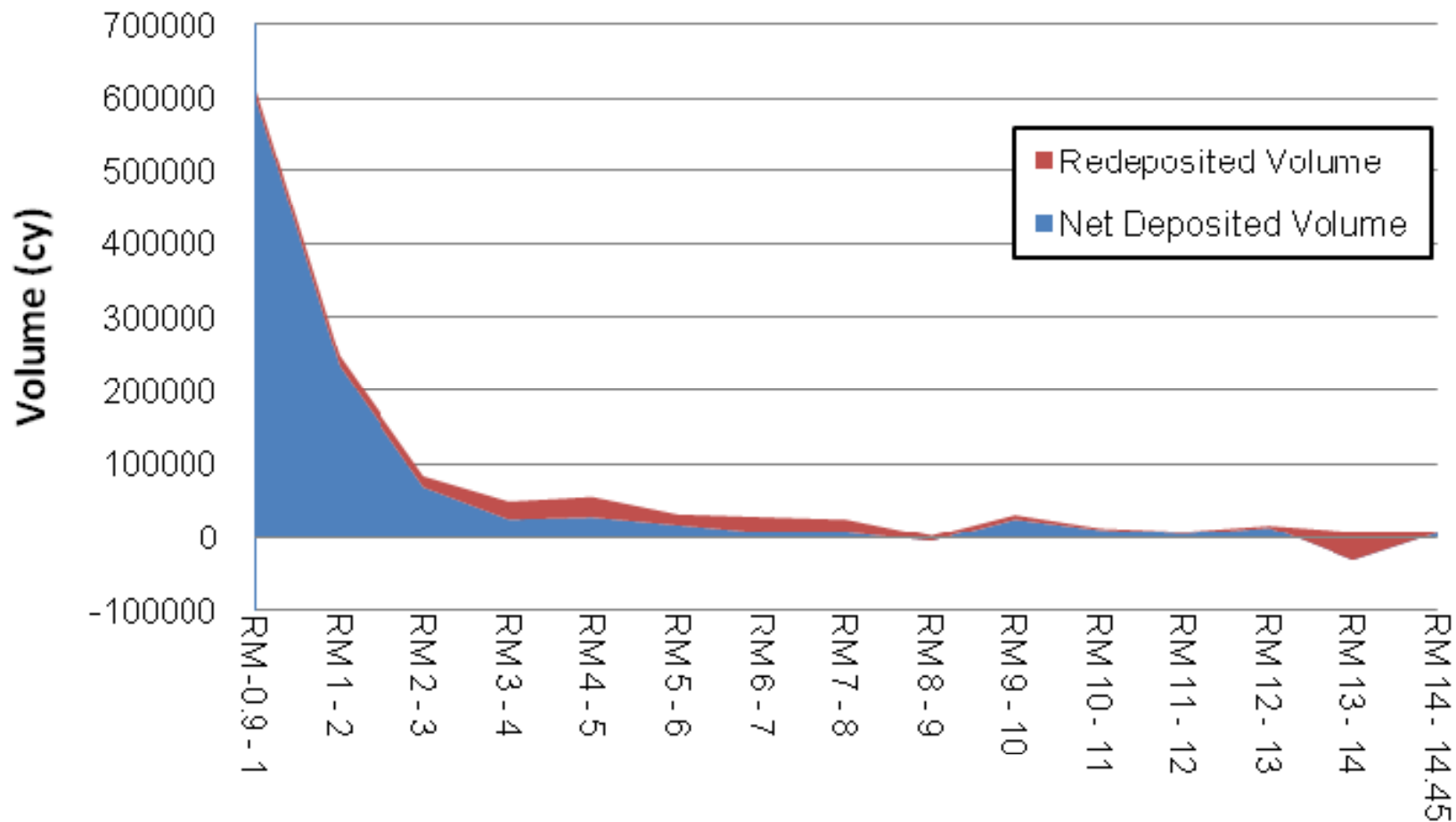


**Fine Grained Sediment Volume Resuspended by River Mile
Scenario 1 2004-2007**

Lower Passaic River Restoration Project

Figure 11-11

September 2008

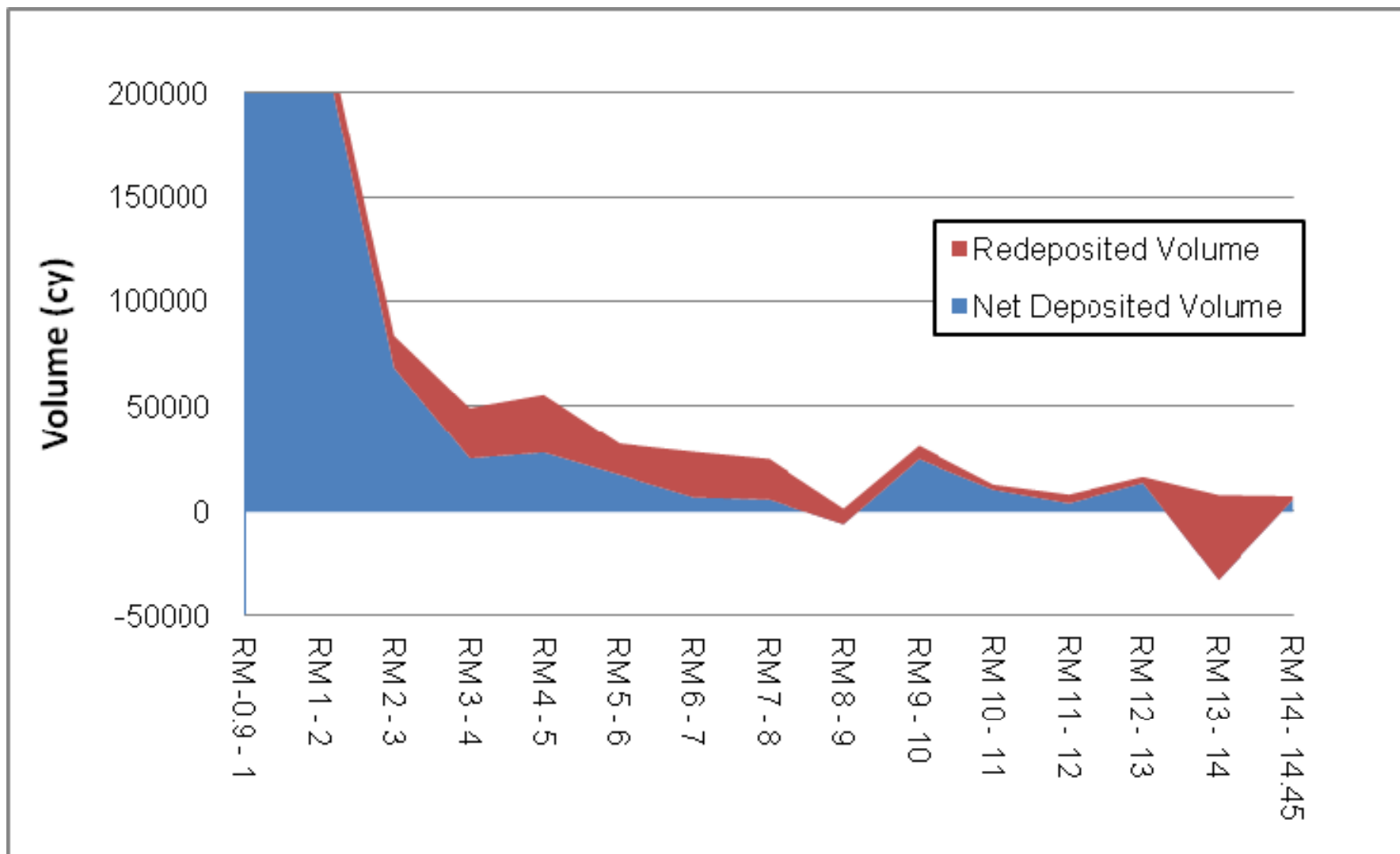


Fine Grained Sediment Deposition
1989 to 2007

Lower Passaic River Restoration Project

Figure 11-12

September 2008

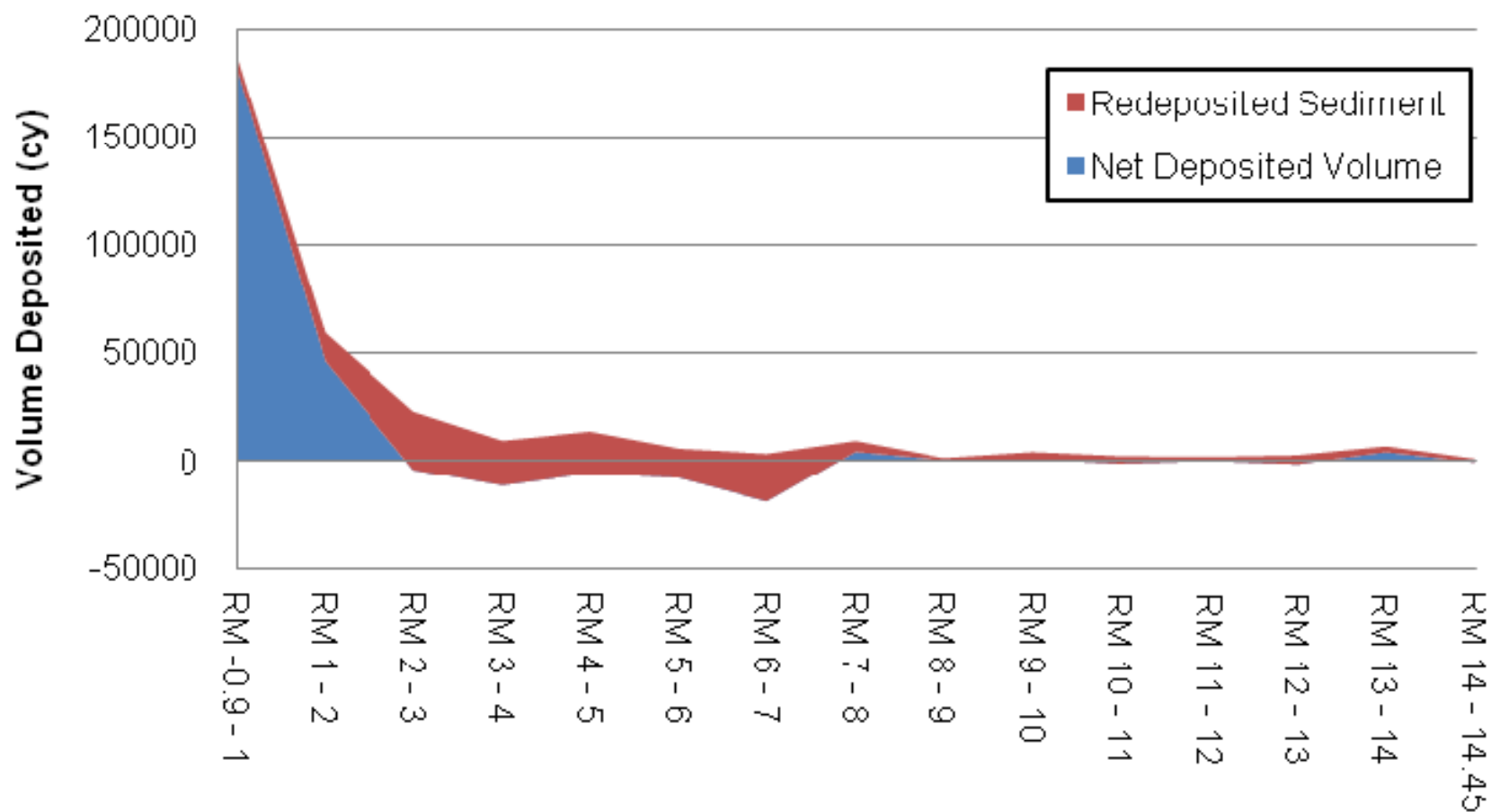


**Fine Grained Sediment Deposition
1989 to 2007- Expanded Scale**

Lower Passaic River Restoration Project

Figure 11-13

September 2008

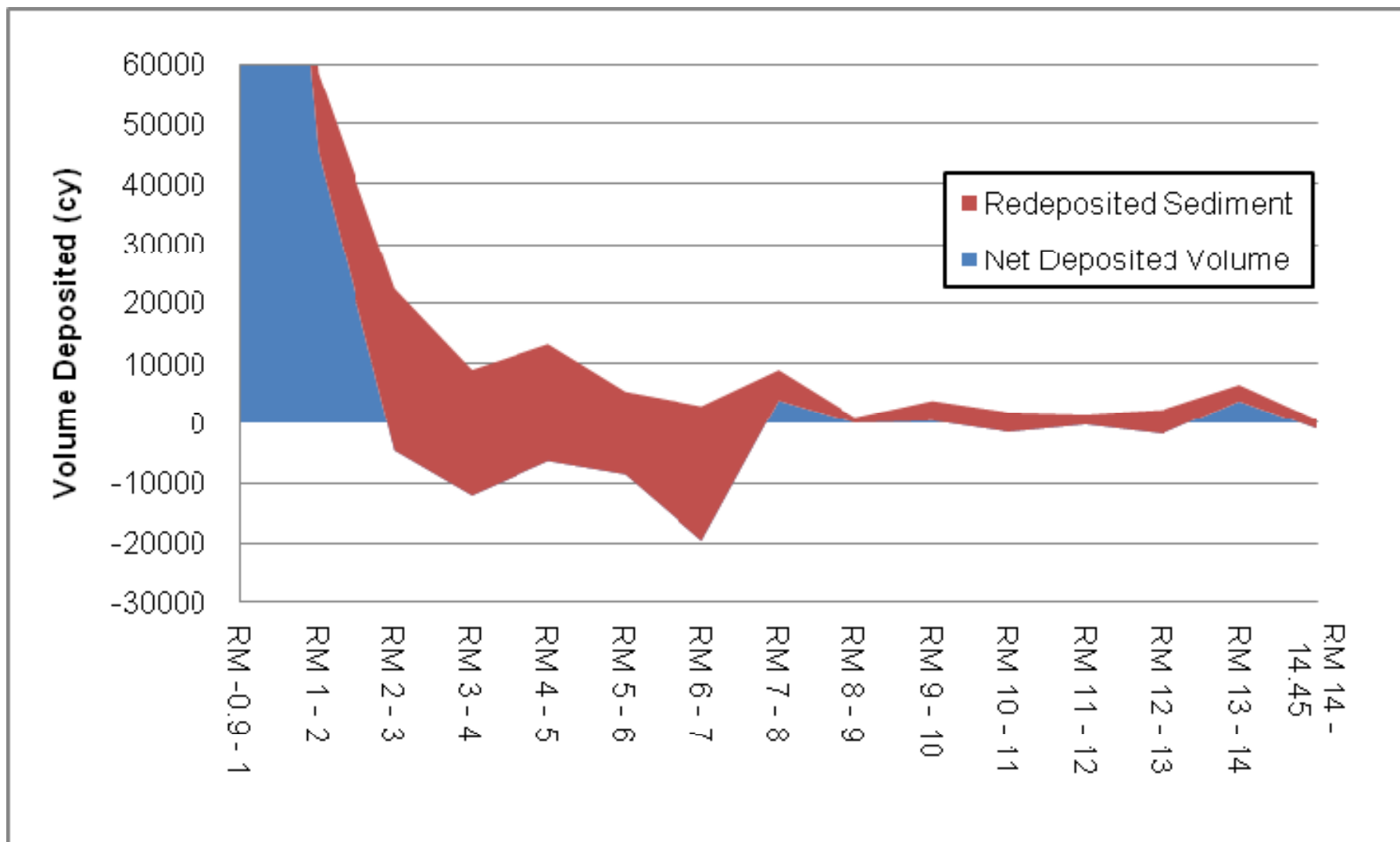


**Fine Grained Sediment Deposition
2004 to 2007**

Lower Passaic River Restoration Project

Figure 11-14

September 2008



**Fine Grained Sediment Deposition
2004 to 2007: Expanded Scale**

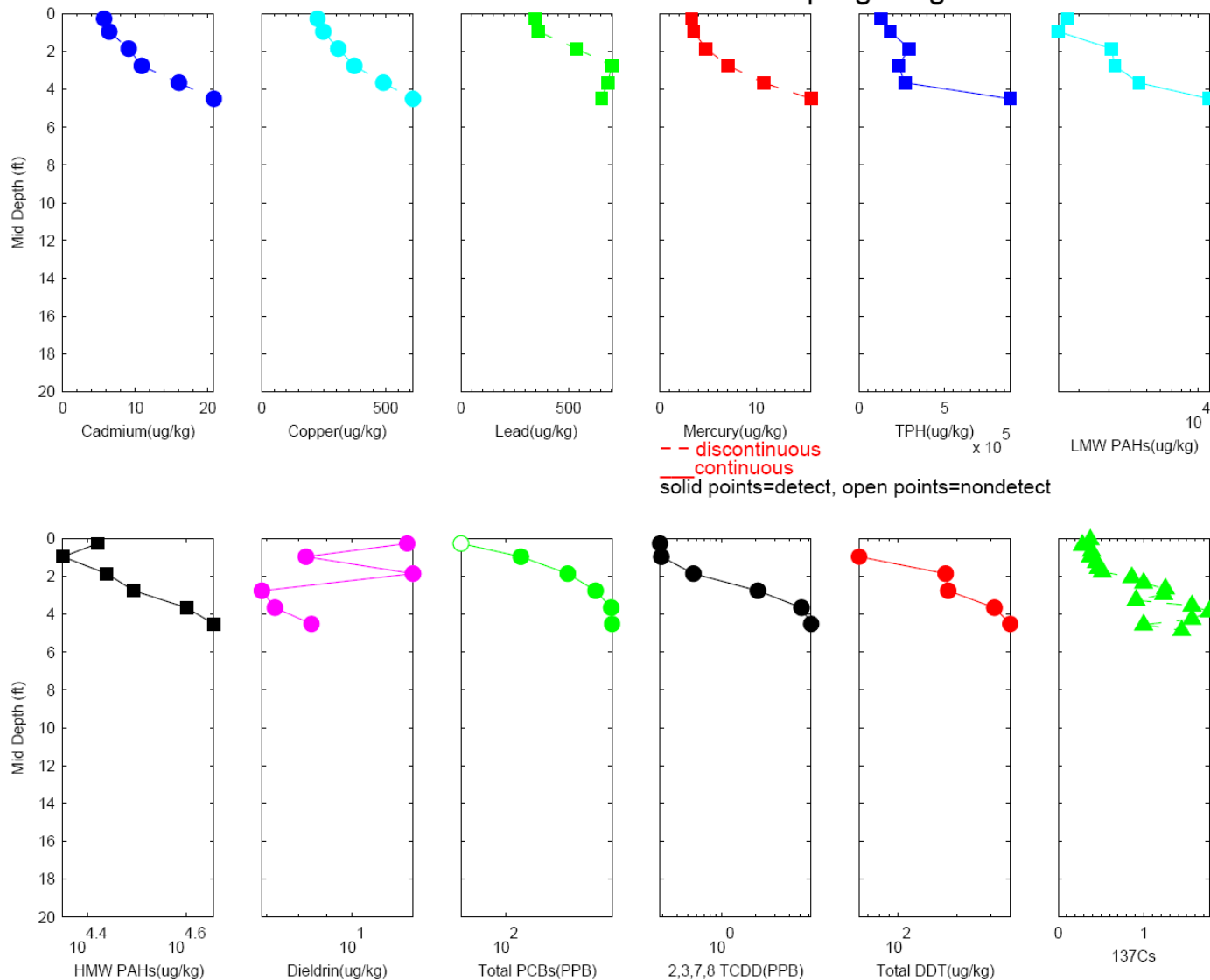
Lower Passaic River Restoration Project

Figure 11-15

September 2008

Sample ID: 229 River Mile 3.08

PASSAIC 1995 RI Sampling Program



Core Classified as Having a Generally Depositional Setting (229)

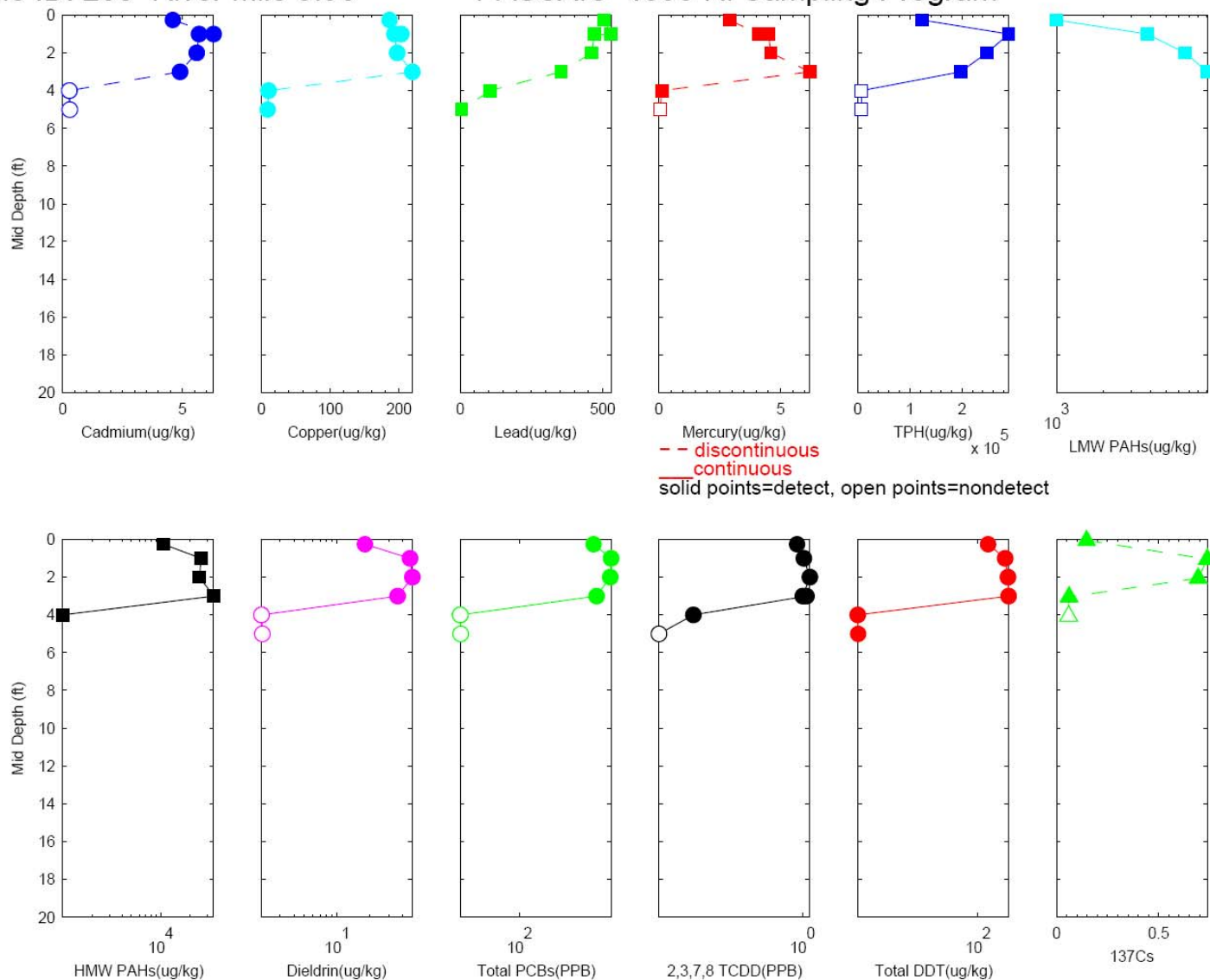
Lower Passaic River Restoration Project

Figure 11-16

September 2008

Sample ID: 268 River Mile 5.96

PASSAIC 1995 RI Sampling Program



Core Classified as Recently Depositional (268)

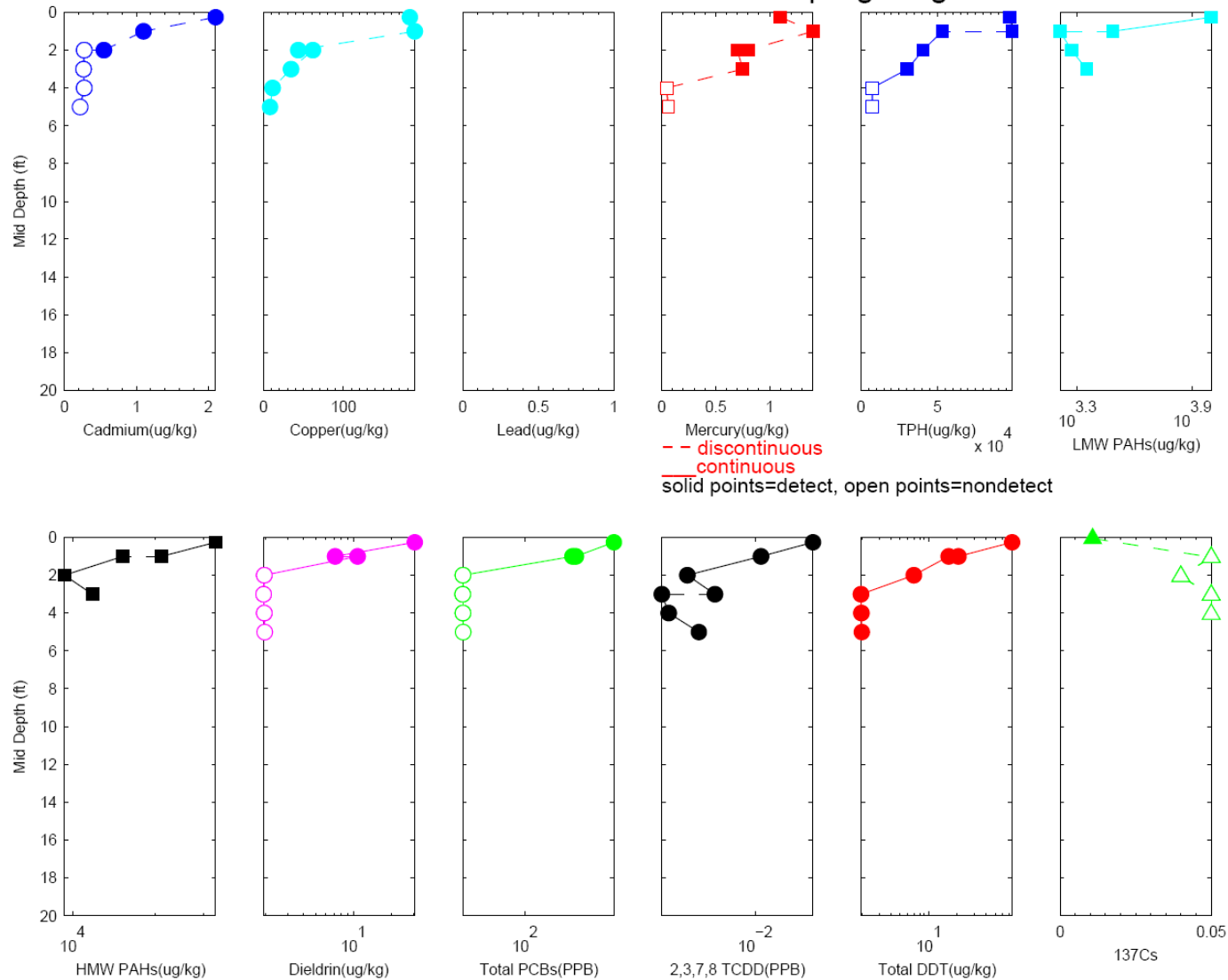
Lower Passaic River Restoration Project

Figure 11-17

September 2008

Sample ID: 264 River Mile 5.74

PASSAIC 1995 RI Sampling Program



Core Classified as Non-Depositional (264)

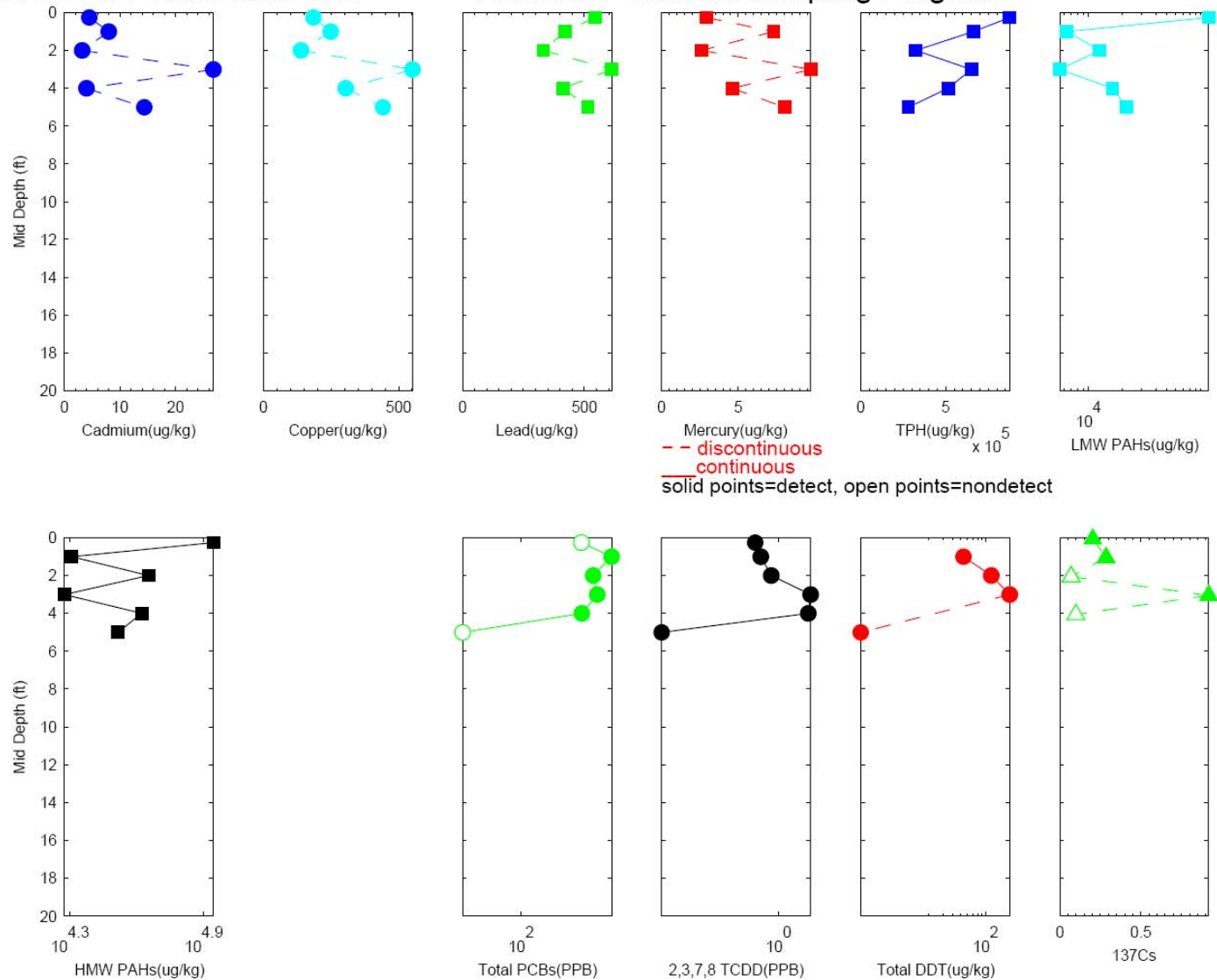
Lower Passaic River Restoration Project

Figure 11-18

September 2008

Sample ID: 244 River Mile 4.23

PASSAIC 1995 RI Sampling Program



Core Classified as Erosive (244)

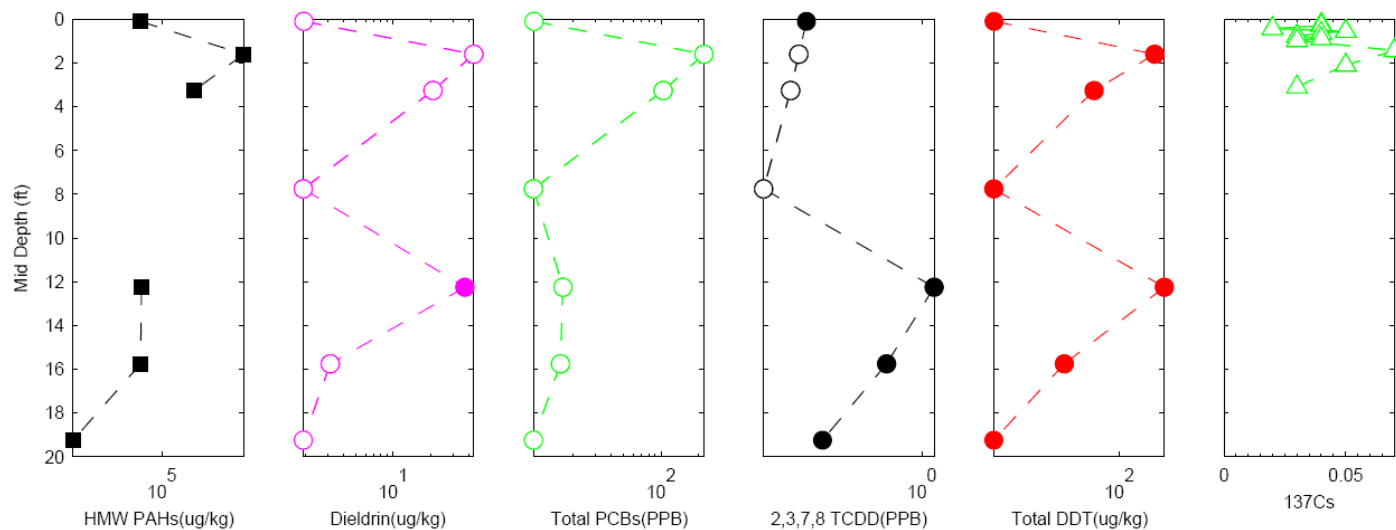
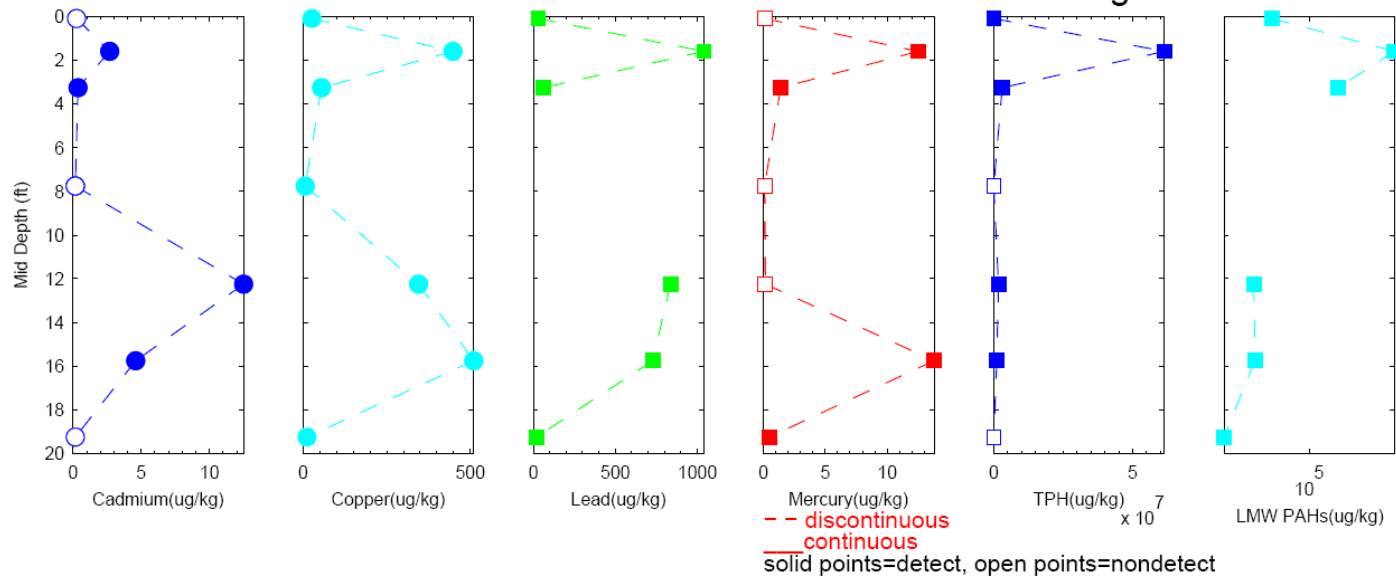
Lower Passaic River Restoration Project

Figure 11-19

September 2008

Sample ID: 20A River Mile 3.05

PASSAIC 1991 Core Sediment Investigation



Core Classified as Unclassifiable (20-A)

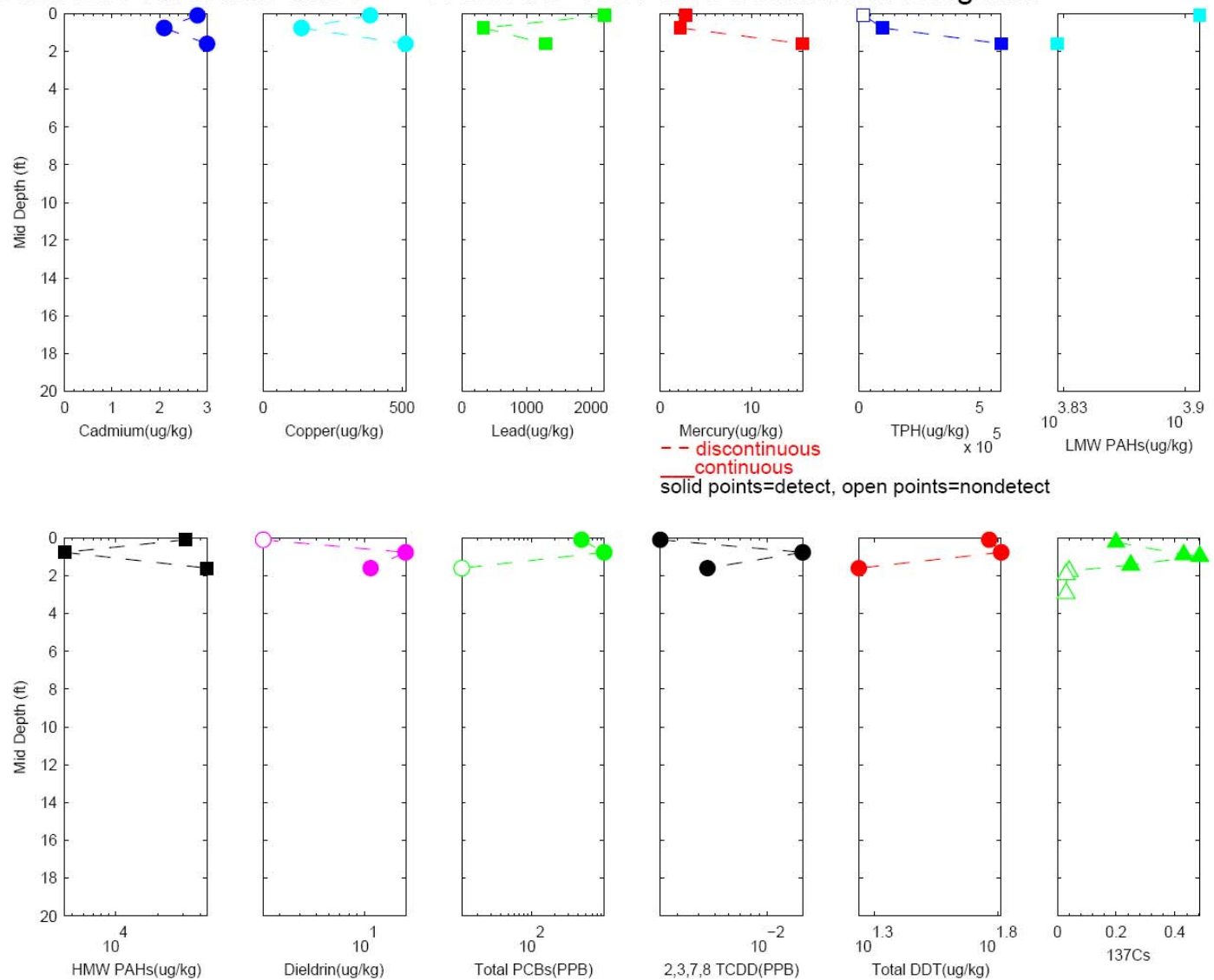
Lower Passaic River Restoration Project

Figure 11-20

September 2008

Sample ID: 02A River Mile 16.95

PASSAIC 1991 Core Sediment Investigation

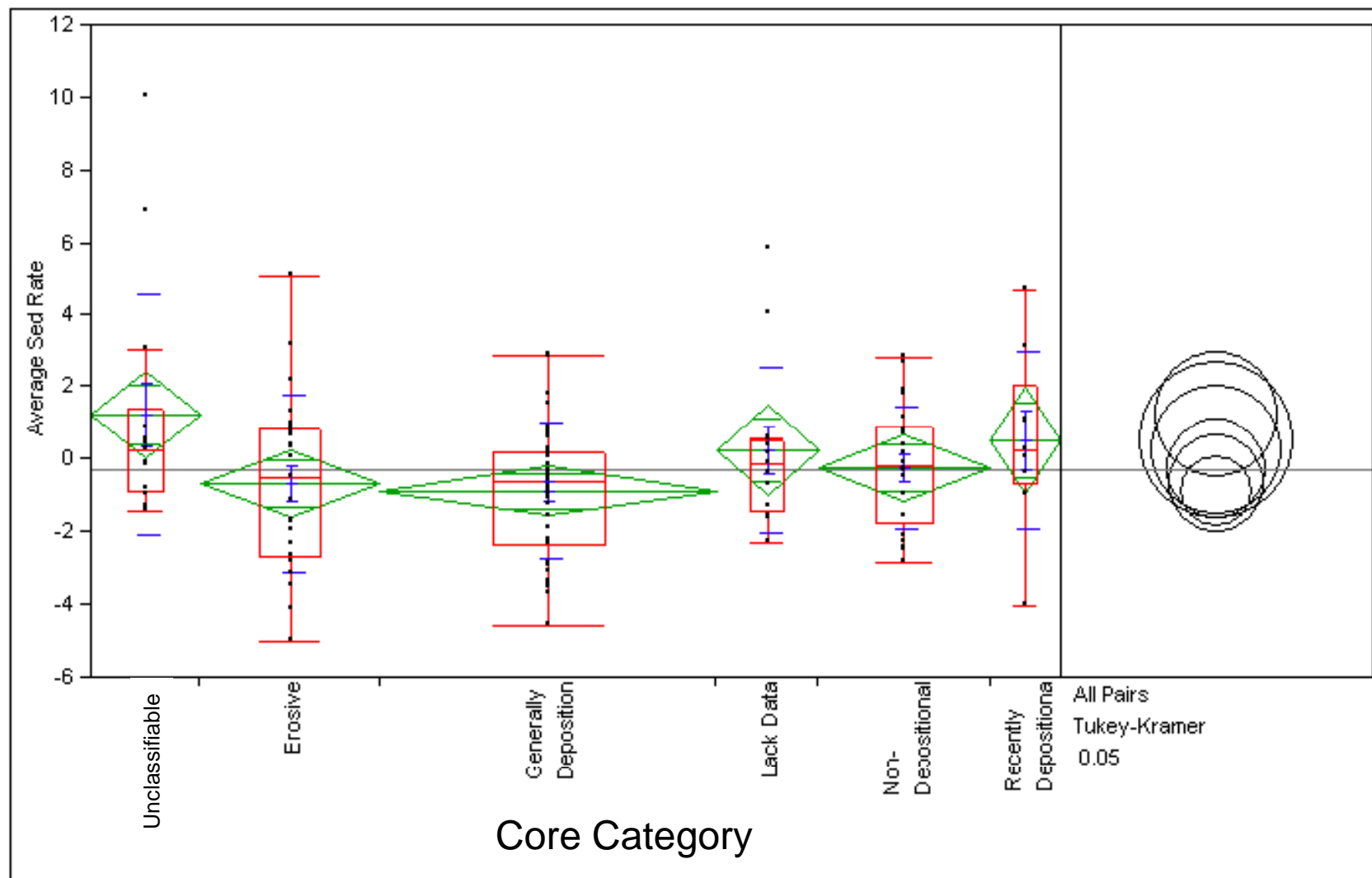


Core Classified as Lack Data (02A)

Lower Passaic River Restoration Project

Figure 11-21

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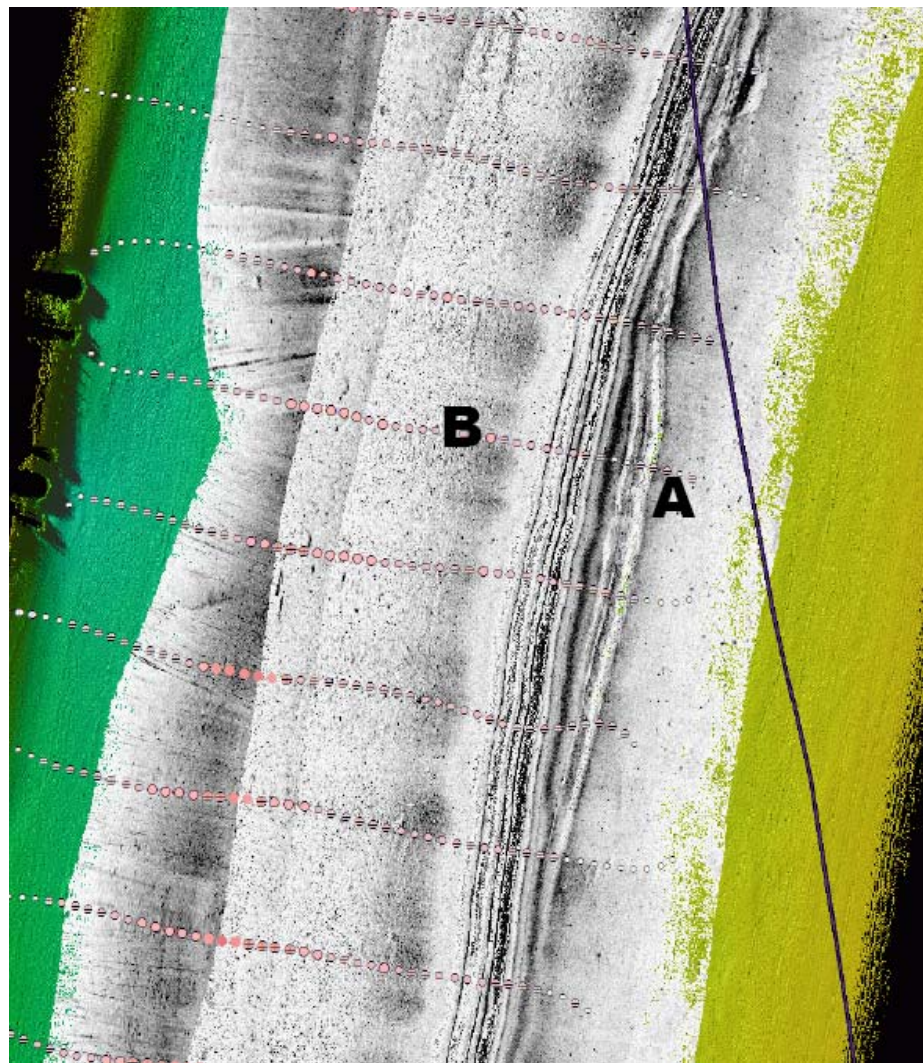
Comparison of Deposition Rates by Sediment Core Class
Deposition Rate based on 1989 to 2007 Bathymetric Surveys

Lower Passaic River Restoration Project

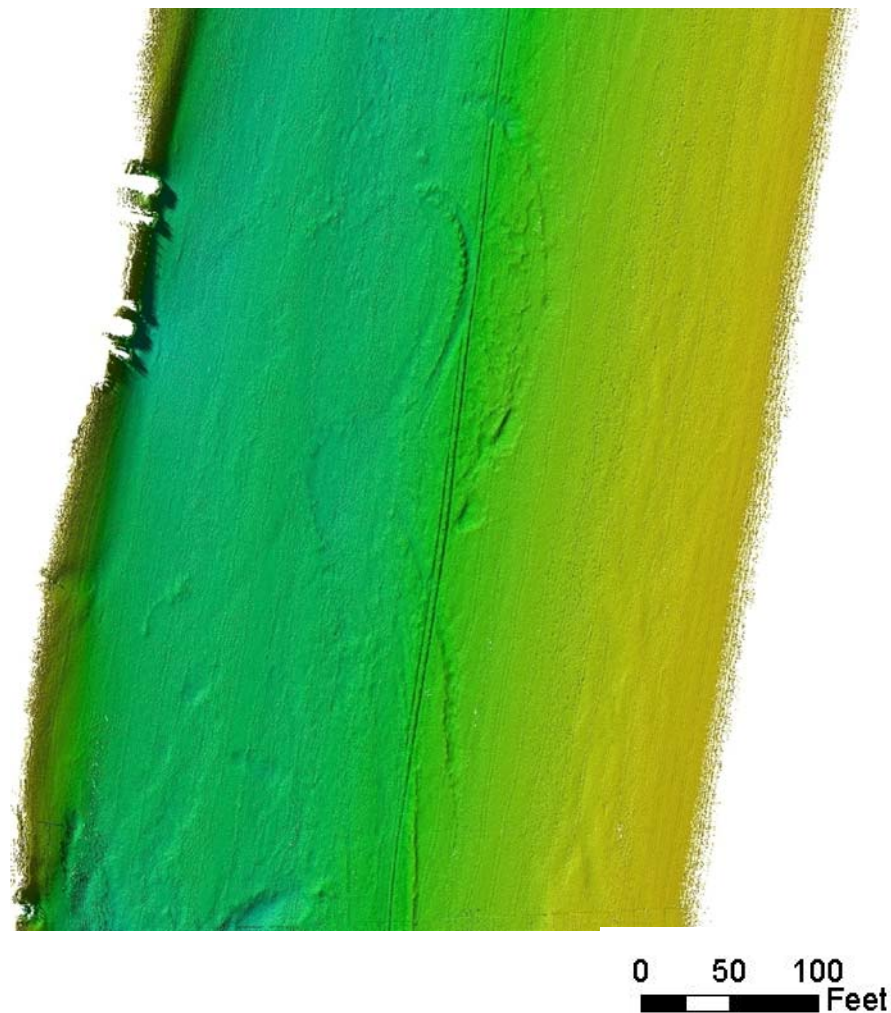
Figure 11-21a

September 2008

2005 Side Scan SONAR



2007 Multi-Beam Bathymetry Aspect



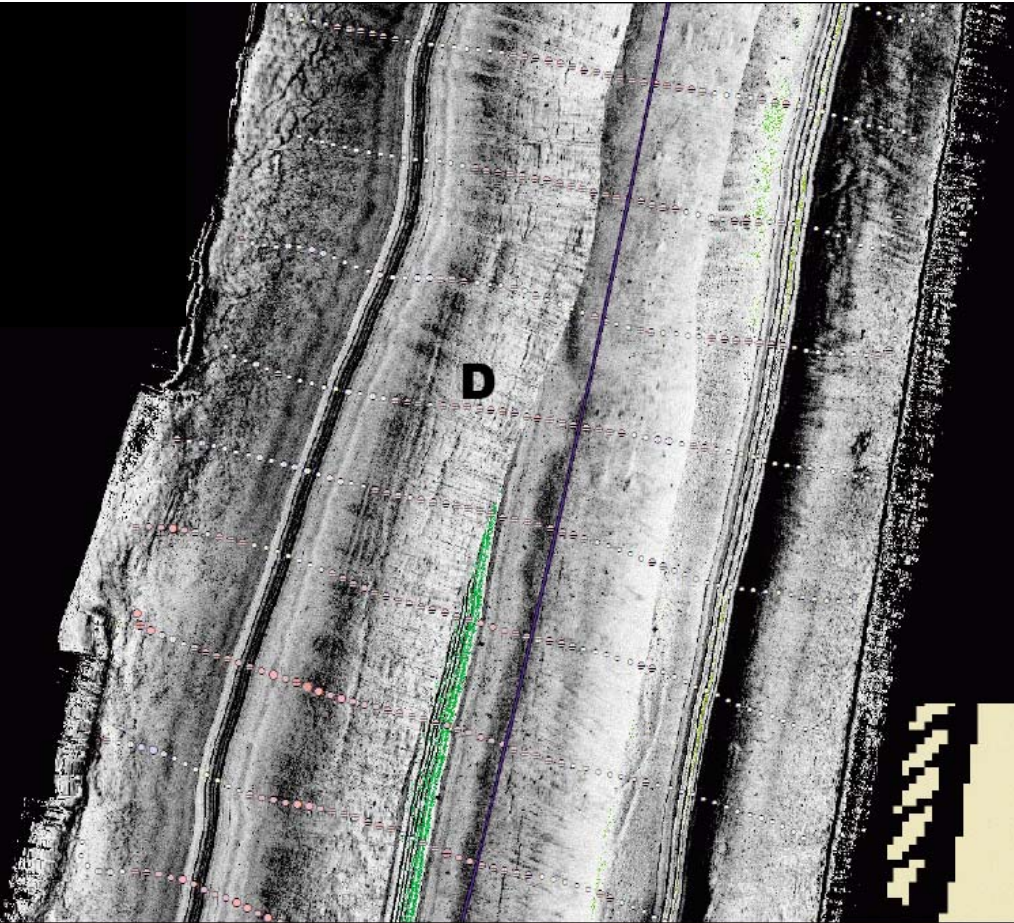
2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at RM0.67

Lower Passaic River Restoration Project

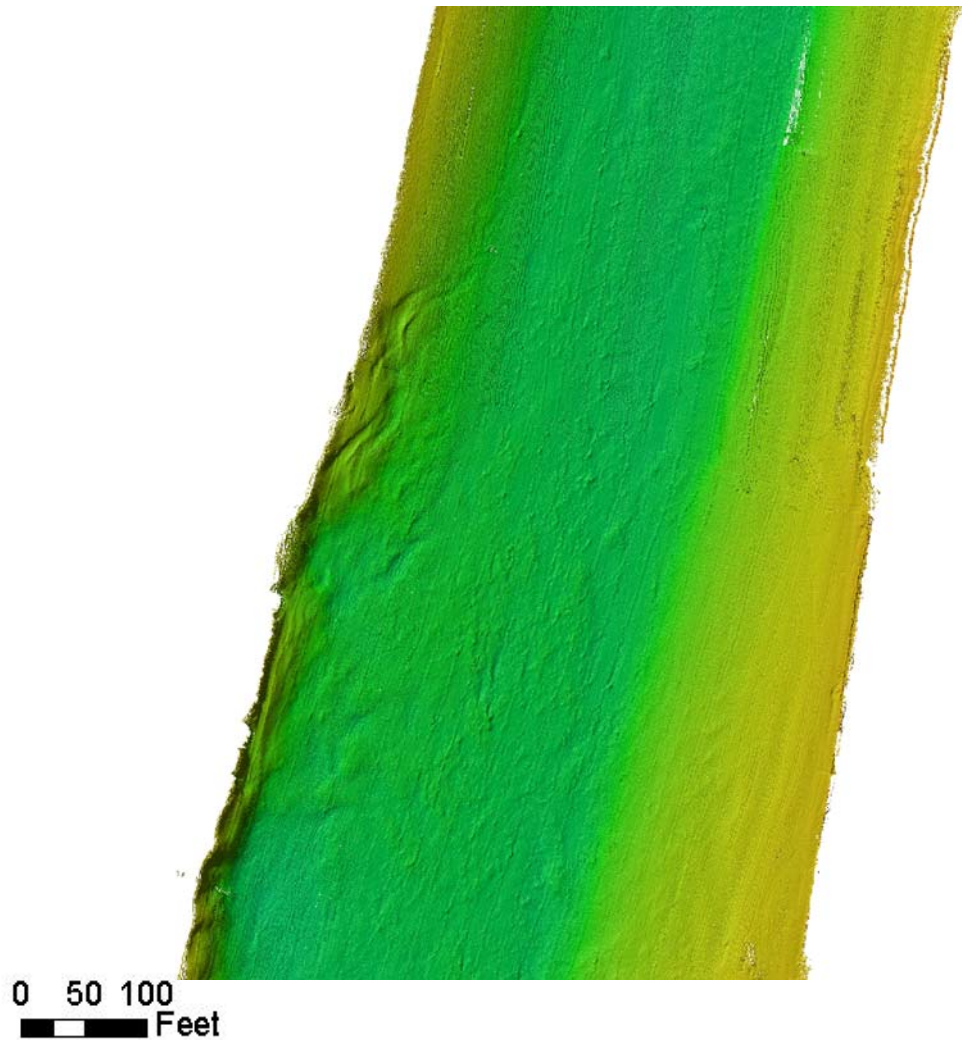
Figure 11-22

September 2008

2005 Side Scan SONAR



2007 Multi-Beam Bathymetry Aspect



0 50 100
Feet



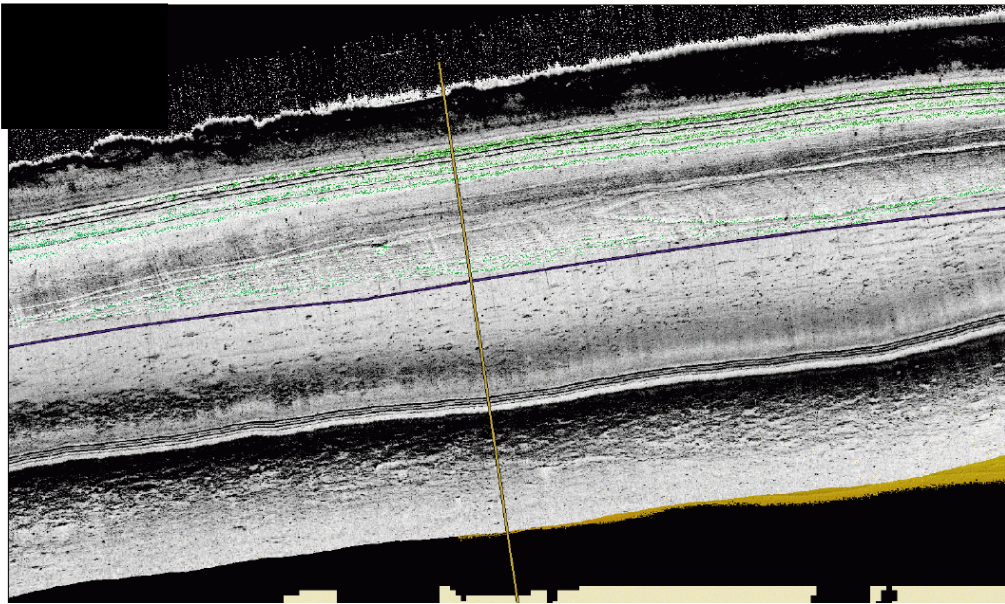
2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at RM1.41

Lower Passaic River Restoration Project

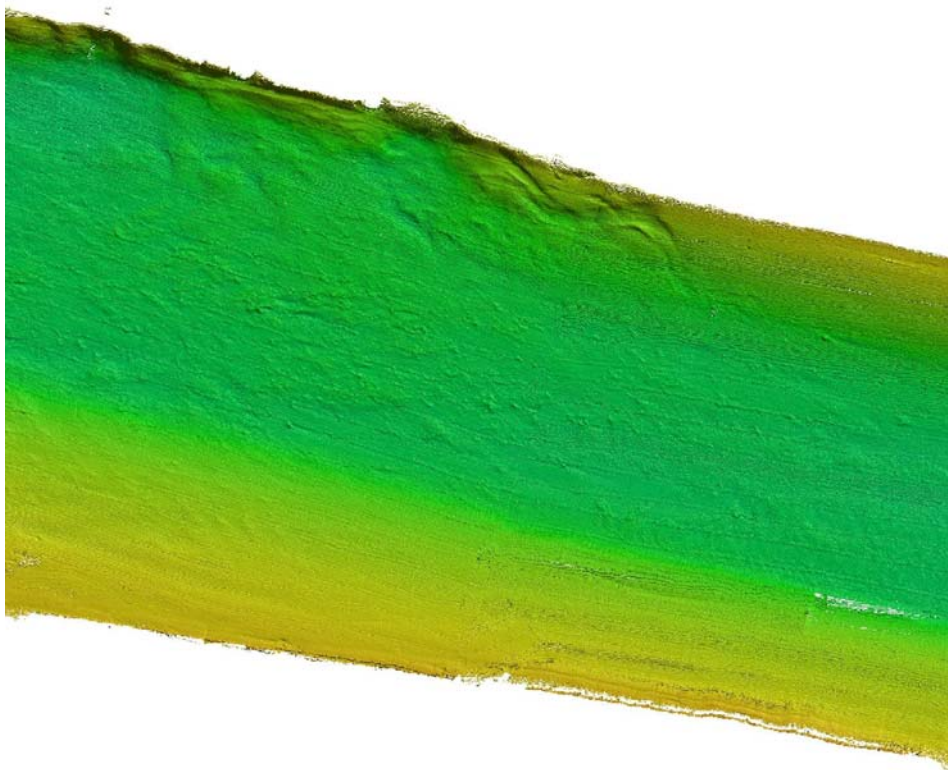
Figure 11-23

September 2008

2005 Side Scan SONAR



2007 Multi-Beam Bathymetry Aspect



0 50 100
Feet



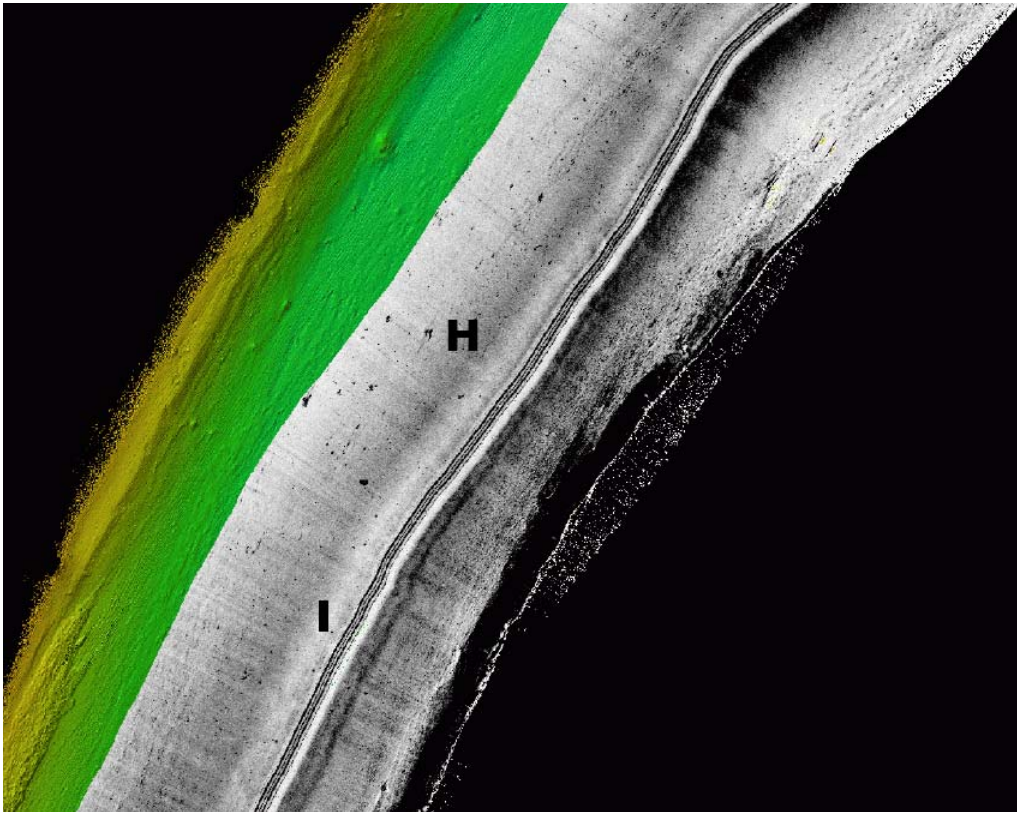
2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at RM3

Lower Passaic River Restoration Project

Figure 11-24

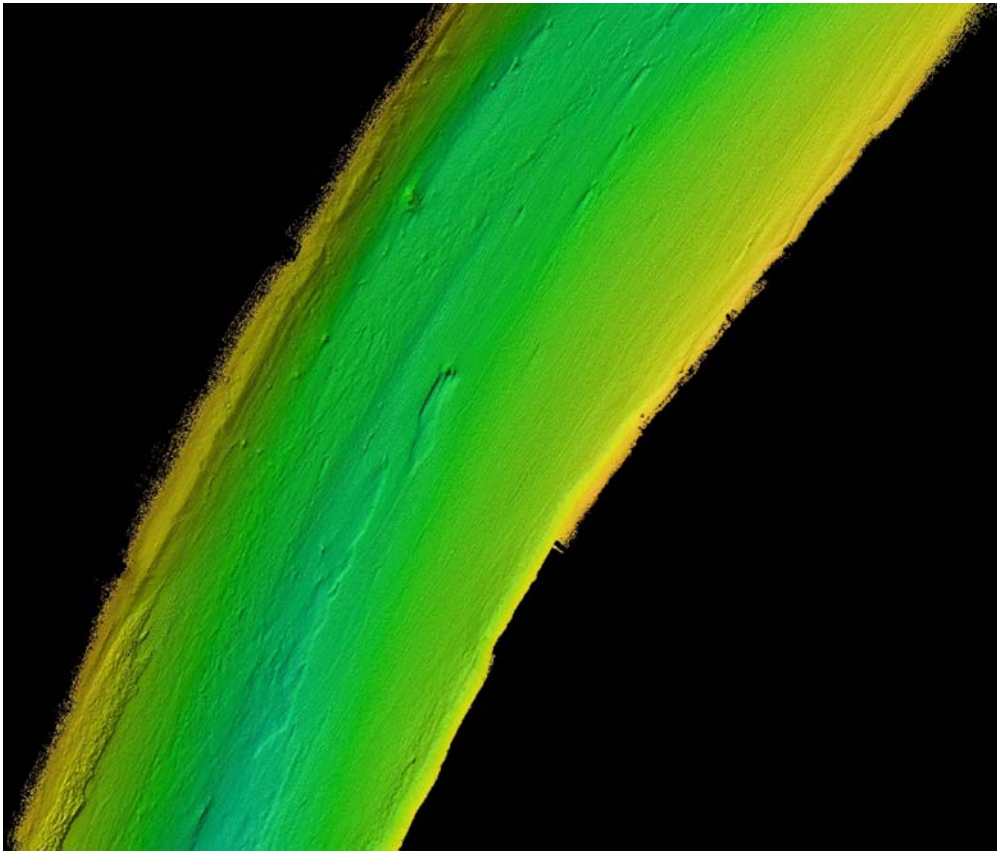
September 2008

2005 Side Scan SONAR



0 50 100
Feet

2007 Multi-Beam Bathymetry Aspect



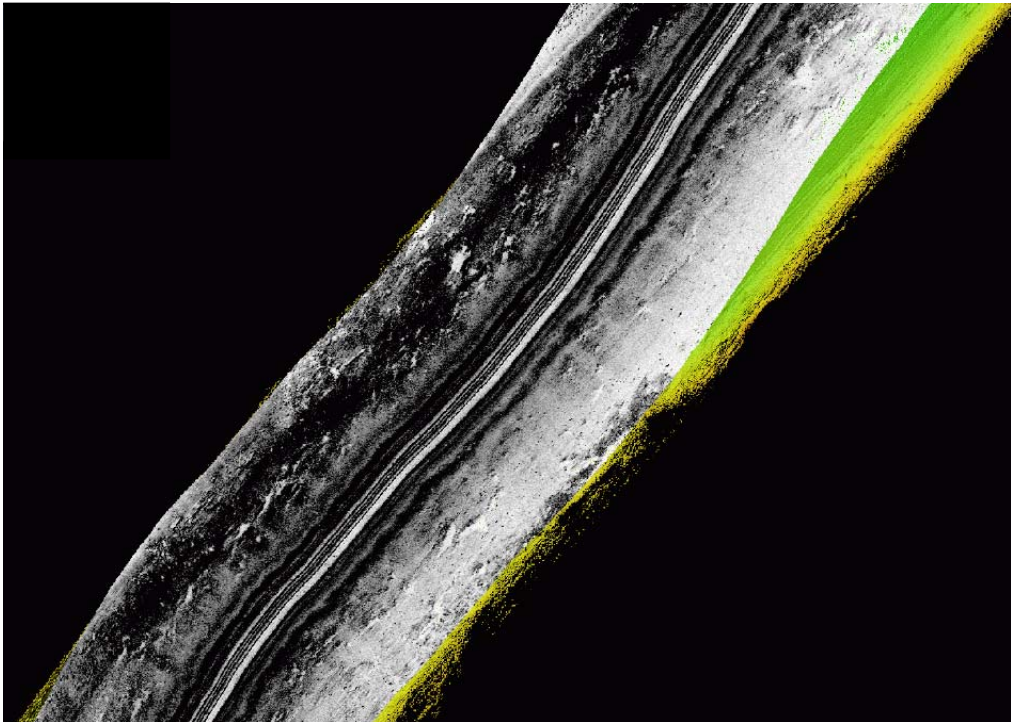
2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at RM3.58

Lower Passaic River Restoration Project

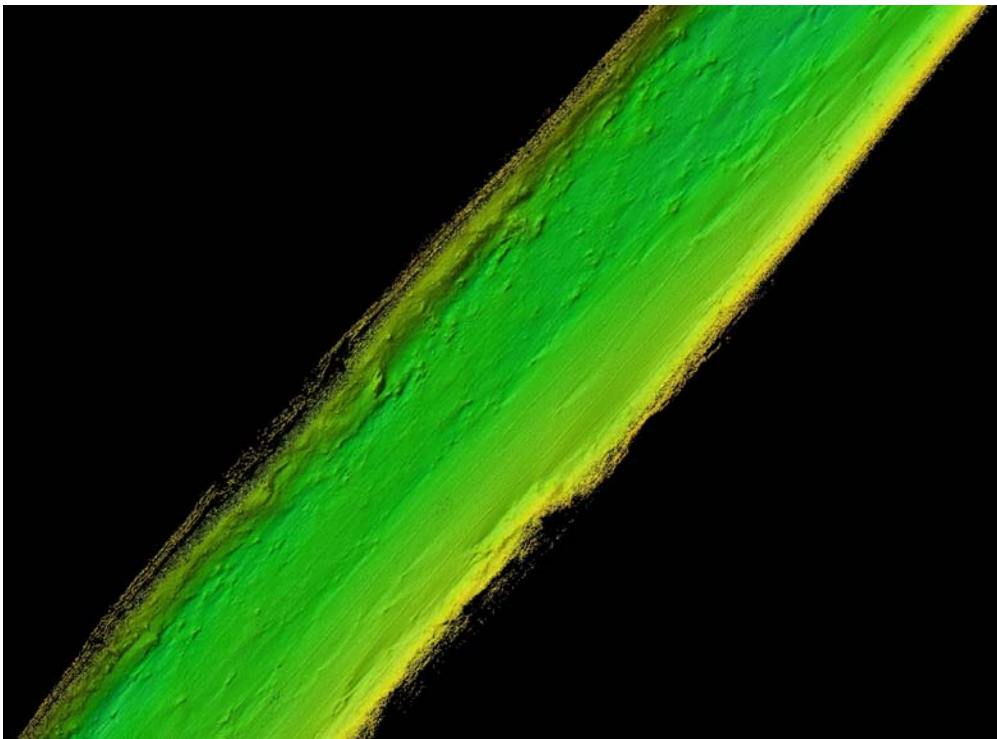
Figure 11-25

September 2008

2005 Side Scan SONAR



2007 Multi-Beam Bathymetry Aspect



0 75 150
Feet

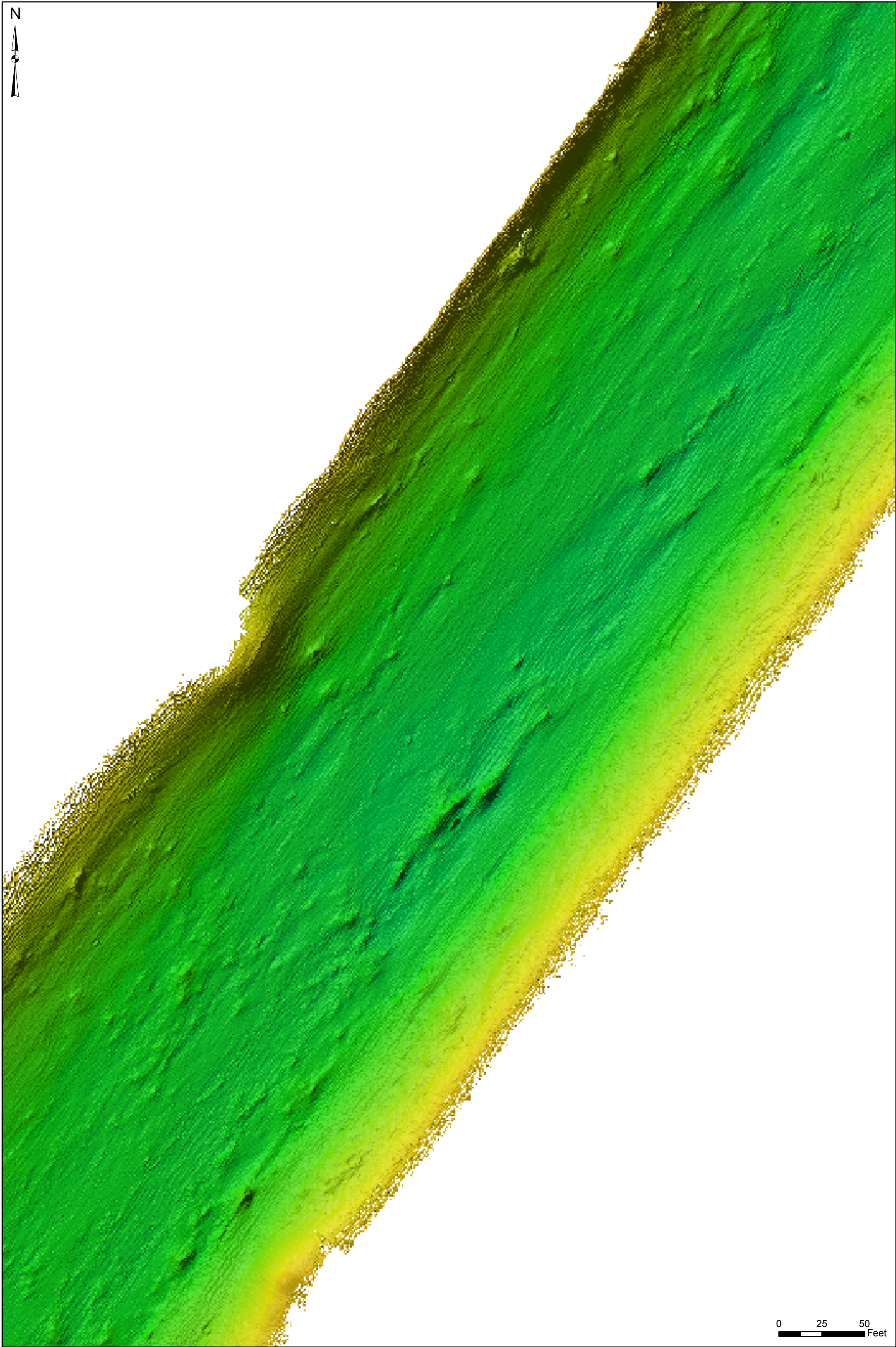


2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at RM7.53

Lower Passaic River Restoration Project

Figure 11-26

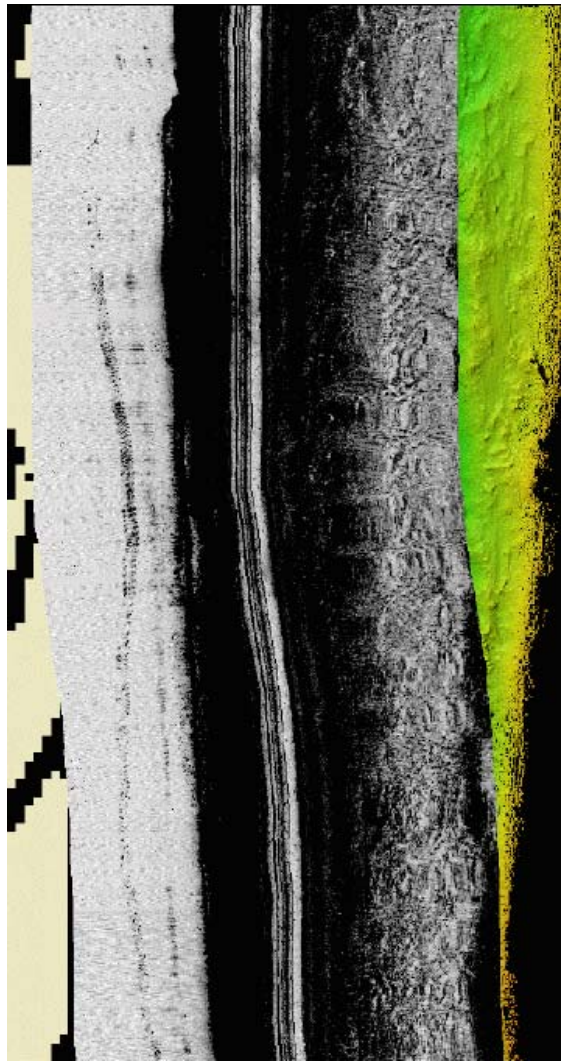
September 2008



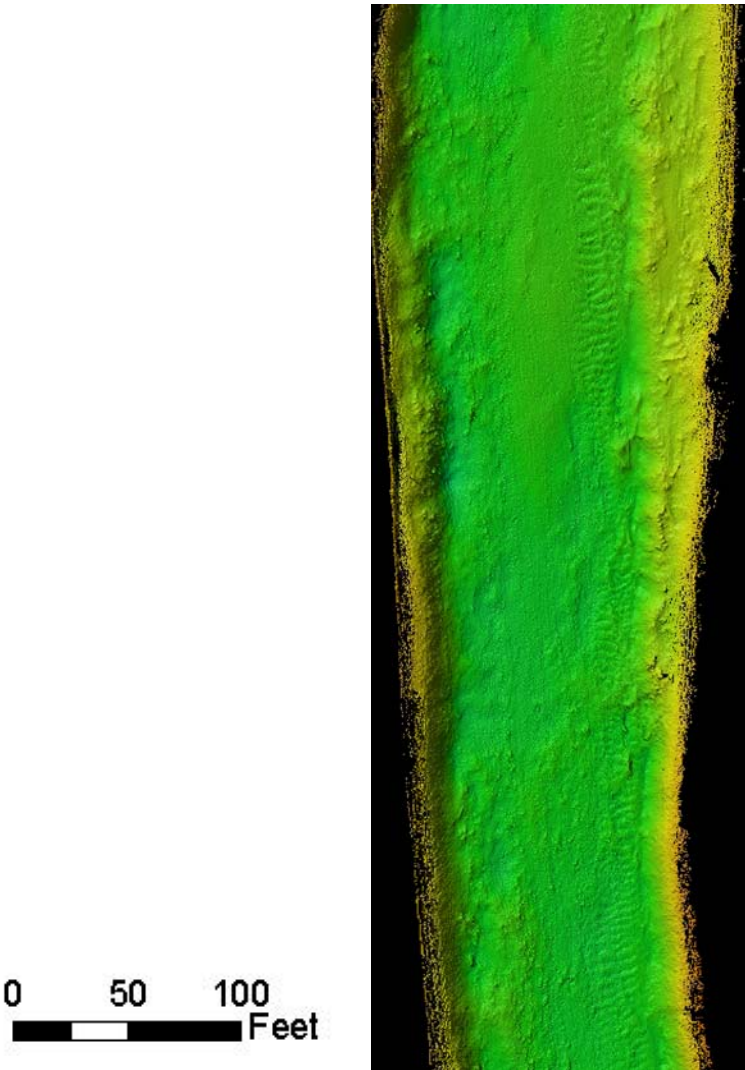
Aspect of the 2007 Multit-Beam Data at RM 8.9
Lower Passaic River Restoration Project

S:\Project\PASSAIC\MapDocuments\4553001.CERCLA\Ageed_2007\MB_Bathymetry.mxd

2005 Side Scan SONAR



2007 Multi-Beam Bathymetry Aspect



0 50 100
Feet

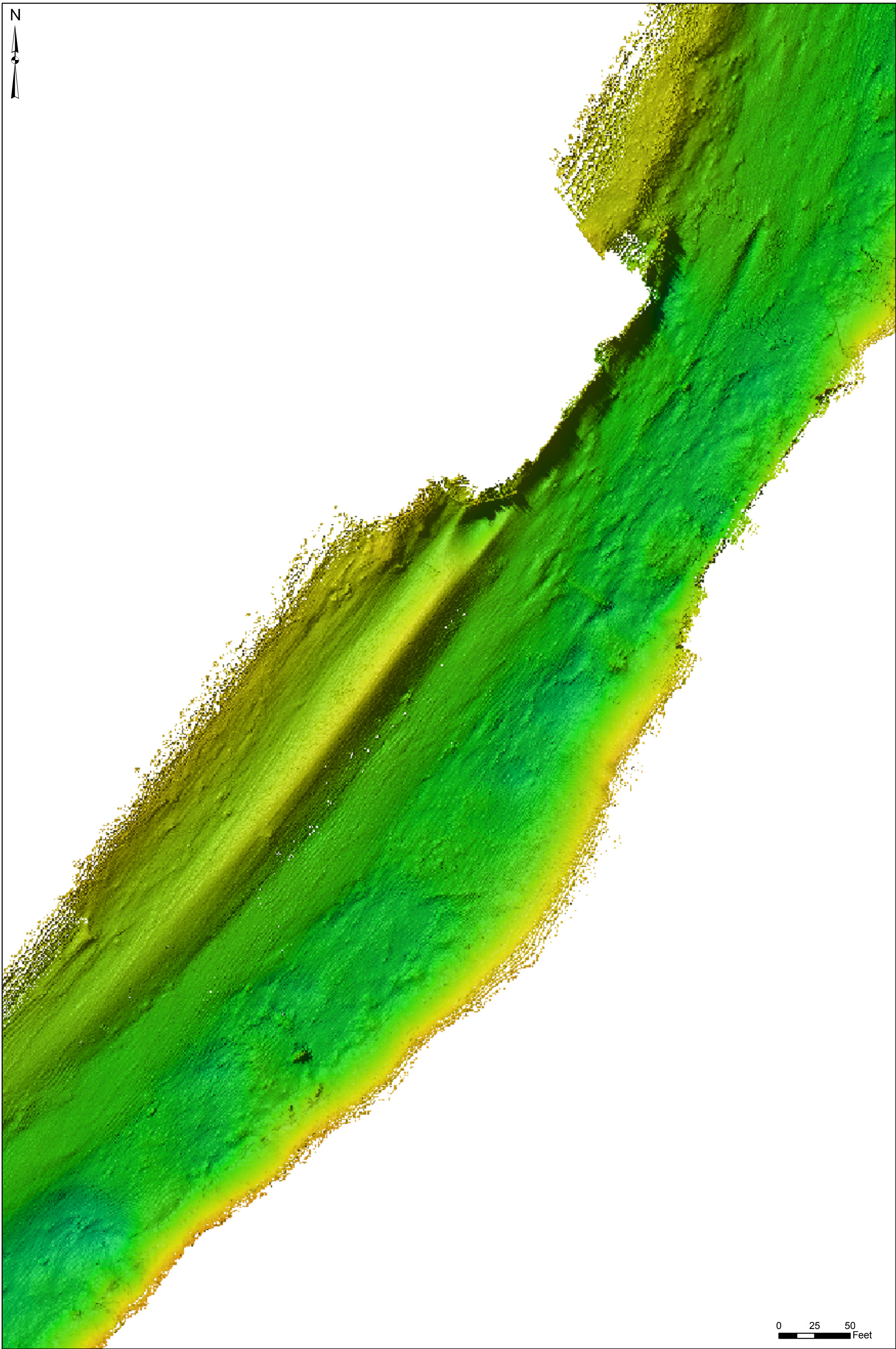


2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at RM8.29

Lower Passaic River Restoration Project

Figure 11-28

September 2008

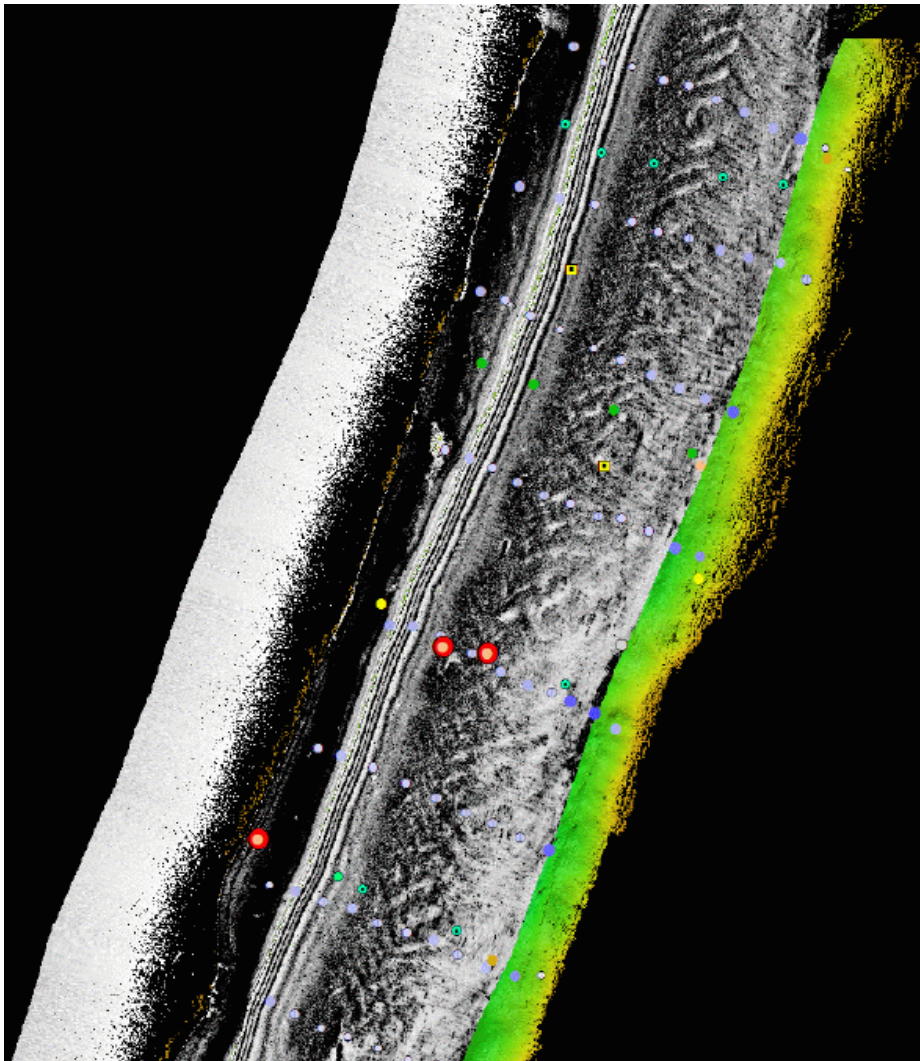


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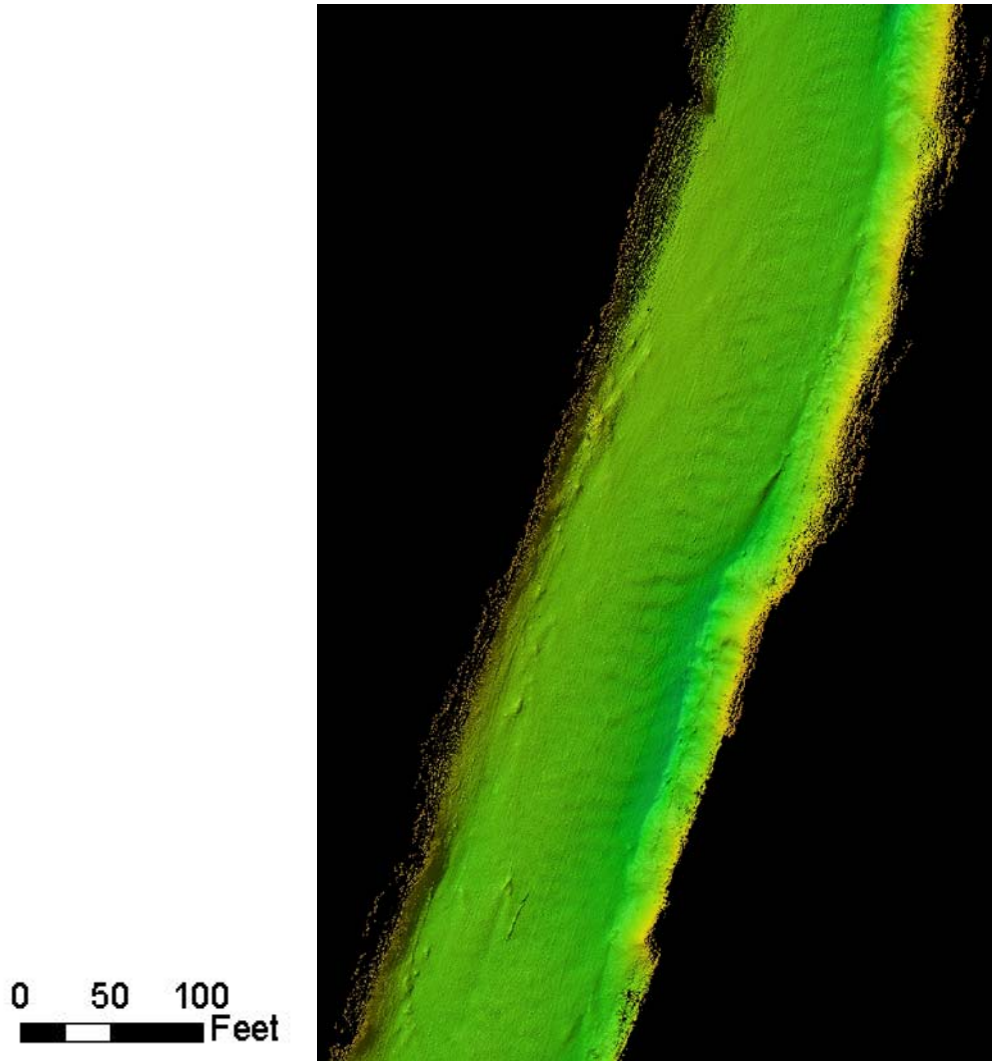


Aspect of the 2007 Multibeam Data at RM 11.6
Lower Passaic River Restoration Project

2005 Side Scan SONAR



2007 Multi-Beam Bathymetry Aspect



0 50 100
Feet



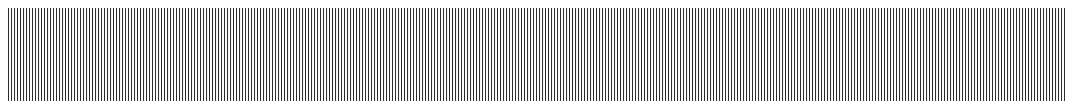
2005 Side Scan SONAR and Aspect of 2007 Multi-Beam Data at
RM13.45

Lower Passaic River Restoration Project

Figure 11-30

September 2008

Section V



Chapter 12 Figures

There are no figures associated with this chapter